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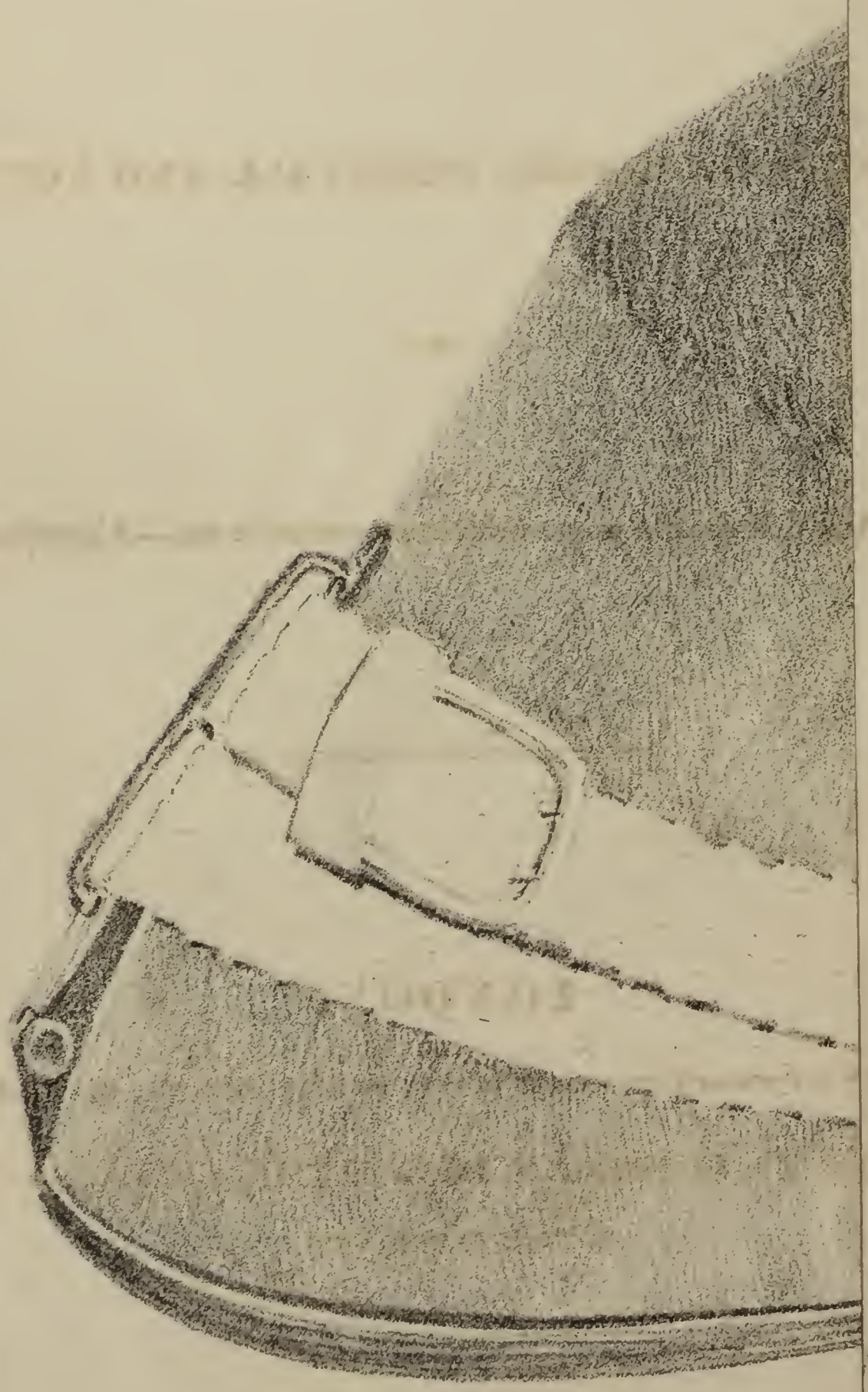
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THE

VETERINARIAN,

FOR 1831.

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VOL. IV.

EDITED BY MESSRS. PERCIVALL AND YOUATT.

Ars Veterinaria post medicinam secunda est.—*Vegetius.*

LONDON:

PRINTED BY COMPTON AND RITCHIE, MIDDLE STREET, CLOTH FAIR;

PUBLISHED BY LONGMAN, REES, ORME, BROWN, & GREEN,

PATERNOSTER ROW.

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THE

VETERINARIAN.

VOL. IV. JANUARY, 1831. No. 37.

ON BREEDING.

By Mr. KARKEEK, *of Truro.*

[Continued from vol. iii, p. 619.]

Degenerare tamen, ni vis humana quotannis
Maxima quæque manu legeret. VIRGIL'S GEORGICS.

Yet have I seen the chosen seeds deceive,
And o'er degenerate crops the peasant grieve:
Save where slow patience, o'er and o'er again,
Cull'd yearly one by one the largest grain.

Nunquam aliud Natura, aliud sapientia dicit. JUV.

For wisdom ever echoes Nature's voice.

THERE is a restless endeavour in the human mind for discovery, which is wrought into the original frame of our nature, and exerts itself in all parts of the creation that are endued with thought or sense. This inclination, however, is oftentimes impelled beyond the limits of reason, which, instead of advancing the cause of the science it professes to teach, tends only to introduce confusion and error.

A tendency of this sort has existed for a long time among many writers on breeding: we do not allude to those little faults which may be imputed to inadvertency, or to the imperfections of human nature, but chiefly to those visionaries who "*rave and wrestle with great Nature's plan.*"

In meliorating our principal domestic animals, how many different systems have been pursued? One author strongly recommends the *in and in* system; that is, by breeding from the nearest affinities: another highly censures this method, as being both morally and physically wrong, and prefers crossing the blood, even if it be of an inferior quality, rather than breed

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incestuously; whilst the third, without considering that the same beauties or the same defects may appear under quite a different aspect in one place to what they do in another, like the *charlatan*, before whose solitary nostrum all diseases must give way ("Remedium efficax et universum") indiscriminately, and dogmatically condemns every other system but that of breeding from different races, so as to supply the faults or defects of the one by the merits or perfections of the other. The difficulty of removing deep-rooted prejudices, and the inefficacy of reason and argument, when opposed to habitual opinions, established on general approbation, are fully apprehended; but as the truth is our only object in the present investigation, which like "a native rustic beauty, is most lovely when unadorned, and seen in the open light of day," we shall proceed to state the subject fairly, without heeding the fine spun hypothesis and specious theories on either side. Error alone needs artificial support; truth can stand by itself, like the Cornish wrestler, who only requires "a ring and fair play."

The argument adduced in favour of the *in and in* system of breeding is, that there can only be one "best breed;" and as perfection admits of no addition, if there be a cross, it must necessarily be with an inferior kind. "When you can no longer find better males than your own," says Mr. Cully, "then by all means breed from them; and on no account attempt to breed or cross from worse than your own, for that would be acting in contradiction to common sense, experience, and that well established rule, or which is a particular case of a more general rule; viz. "that like begets like:" whilst the argument on the opposite side is, that though the beauty of animals so bred may not be diminished, yet that it tends to weaken the breed by producing a tender, unhealthy, and diminutive progeny. An example the contrary of this may be adduced in the breed of wild cattle in Chillingham Park, in the county of Northumberland, where they have existed for these last five hundred years without any intermixture, yet they have not *degenerated*, nor become less hardy from breeding *in and in*, as without doubt they have bred from the nearest affinities in every possible degree.

It was the celebrated breeder, Bakewell, who first brought the *in and in* system into notice; he justly considering the poet's fancied doctrine that Nature had placed both physical and moral laws as a barrier to prevent consanguineous intercourse as nonsense; since, had this been the case, she would have placed an instinctive aversion in animals to such an union. This intelligent and expert breeder obtained one of the finest

stocks that ever was produced, not only without diminishing in size, but with a continual improvement. The prejudice that exists against breeding from the nearest affinities has been too much confounded with the laws and regulations that were necessary, from political necessity, for the proper regulation of human society. The only way in which degeneration could possibly follow by breeding from the nearest affinities would be by the increase of hereditary diseases. We have before alluded to the hereditary transmission of physical and moral qualities in animals by breeding: we then shewed, that there were undoubted links between father and son in the peculiarities of form and proportion; we shall find also, on investigation, that there is an hereditary transmission of corporal sufferings.

It was formerly thought that hereditary diseases depended on certain morbific poisons; but of late years it has been proved that those diseases were not owing to any morbific matter, but to a particular conformation of structure, transmitted from the parents to the offspring*: therefore a superior breed of any kind can only be produced by excluding those that are affected with hereditary taint, otherwise all those natural deformities, both physical and moral, which spring up so quickly in the artificial life to which they are subjected, are transmitted to posterity, and tend by their multiplication to degrade the race: but no danger can possibly exist when the parents are *perfect;* but, on the contrary, by breeding *in and in* their good qualities will be strengthened.

Much has been said in the different publications on this subject of the celebrity which Mr. Bakewell acquired by breeding from the nearest affinities; but the merits of the theory on which he acted are points on which parties held different opinions. This is owing to the secrecy with which he carried on his business, and to the frequent degeneracy of the offspring

* The opinion that certain diseases were hereditary has been held ever since the days of Hippocrates; and although this opinion is confirmed by the experience of mankind in all ages and countries, yet there are not wanting opponents to the doctrine. The eccentric Dr. John Brown in particular opposed it. "A taint," he says, "transmitted from parents to their offspring under the appellation of hereditary, is a mere tale, or there is nothing in the fundamental part of this (the Brunonian) doctrine. The sons of the rich, who succeed to their father's estate, succeed also to the gout. Those who are excluded from the estate, escape the disease also, unless they bring it on by their own conduct. Though Peter's father may have been affected with the gout, it does not follow that Peter must be affected; because by a proper way of life, that is, by adopting his excitement to his stamina, he may have learned to evade his father's disease.—*Elem. Med.* 2d edit. vol. ii.

when taken from under his management; but this was occasioned by the ignorance of the parties, who, instead of excluding the imperfect, and breeding only from those that were perfect, left every thing to chance; by which act of inconsistency unions were formed that very likely caused a degeneracy instead of an improvement. Another cause of failure which has happened to those who were ambitious of breeding animals similar to the late Mr. Bakewell, was owing to the different system adopted in their manner of rearing. Mr. Bakewell had only one object in view, and that was, to obtain an exuberance in the flesh and size of his animals. This he accomplished by an abundant supply of food, such as milk, grain, &c. &c. from the time the animal quitted the mother, accompanied with warm and comfortable lodgings, regardless of the expense: indeed, they may be said to have lived an artificial life. No wonder, then, that animals so fed could not be brought to the same perfection under a different management, when, instead of a bucket or two of milk and a gallon or two of corn daily, they were fed entirely on grass and hay.

Although we cannot commend this practice for general purposes, yet it does not prove his system to be erroneous. One thing we are certain of; that although there was some mystery attached to his system, yet the improvements which he effected in live stock in particular is well known to be great.

Causa latet; res est notissima.
The cause is secret, but the effect is known. ADDISON.

Mr. Bakewell's contemporaries give him the credit of being an ingenious and practical breeder. His valuable stock was reared wholly from consanguinity, and, we repeat it, with a continual improvement. He was too good a judge to breed from animals possessing hereditary taint; for a judicious breeder would, upon examination, point out in what they must ultimately fail, as a mechanic would discover the weakest part of a machine before it gives way.

There are cases in which the breeder may certainly be deceived; for some horses, for instance, although perfectly sound in their eyes, have been the means of producing in their offspring that curse on all good horse-flesh—*specific ophthalmia:* yet a person must be blind indeed that would run the risk of breeding from a blind stallion. The latter case may, therefore, be very easily avoided by merely making use of their eyes; and the former one also, if the breeder attends to the rules laid down on the subject of "descent." And where there is the

least doubt respecting the pedigree, let him endeavour to see some of the stock, making sufficient allowances for the kind of mares they are got from, and thus form his opinion. *Chronic Founder* is another instance of constitutional liability. This disease is probably owing to the introduction of the eastern blood, since the thorough-bred is more predisposed to this disease than any other. In the Arabian deserts a narrow foot was preferable to a flat one; but in our moist pastures we require the latter form, and all our indigenous horses have broad circular feet. Weakness in the fore legs is another constitutional disease, and broken-winded horses also are dangerous to breed from. A strict examination ought likewise to be made to discover if there is any tendency to grease, canker, sand-cracks, splints, spavins, ringbones, curbs, &c. &c., as they also may be considered, in some respects, to be hereditary; and this should more or less influence his choice, as much as pedigree, symmetry, and action.

Having, then, considered the different circumstances connected with the subject, we conceive that we are fully warranted in recommending the practice of breeding from *the best animals of their kind, whatever may be their consanguinity; the male and female should approximate as much as possible in their respective size and qualities*, no matter whether for the turf, the carriage, the road, or for heavy draught. By pursuing this method, the breeder will run the least risk of deterioration, and may almost to a certainty obtain that form and those qualities which he is anxious to produce.

The practice of crossing the various breeds prevailed for a long time, under a supposition that animals so bred were improved in symmetry, and also were prevented from becoming small, tender, &c. &c. Time and experience, however, soon proved this notion to be incorrect, and to have no foundation in truth.

Opinionum commenta delet dies, Naturæ judicia confirmat. CIC.

Time obliterates the fictions of opinion, and confirms the decisions of Nature.

By referring to the pedigrees of our best racers we shall discover that many of them were bred from the nearest affinities: Flying Childers, High-flyer, Old Fox, Omar, Babraham, Blank, Trap, Tally, Silverly, Damper, Johnny, Skakespear, Goldfinder, Jethro, Hudibras, Mop, Grey, and Chesnut Skim, &c. &c., are striking instances of the good effect produced by keeping in "good blood," having once possessed it, even though it be incestuous. The horses of the Bedouins are always in their primi-

tive state of purity: they have never crossed with other races, but keep continually (if it be a good one) in the same family, and prefer using a stallion, although old and blemished, to employing one of different blood, however perfect he may appear; yet they have not degenerated.

The same practice succeeds best in the vegetable world; "the finest and most perfect productions of the sort being propagated by sowing seed selected from the best and most perfect plants of the same kind, and taking the buds or offsets from the best and most perfect trees of the same species*."

A late author† on breeding says "that when in possession of good blood, it is right to continue it with one cross; but at this time almost every body objects to it, if directly incestuous, as not only being unnatural, but that colts so bred degenerate. I cannot" he says "take upon me to say how often an incestuous breed may be carried on before a degeneracy takes place, as I am not aware of that being the case in any instance, *and experiment is in favour of breeding from son and mother, and father and daughter.*" The author then relates examples to prove the good effect of this method; and appears to be decidedly in favour of the *in and in* system of breeding. But the author's favourite mode of breeding, and one that he strongly recommends, is "by crossing for once into fresh blood, and then back again." We beg leave to put a question, and one which appears to have struck the author himself—Why not continue incestuous if it be right?

But this method of breeding is evidently introduced for the purpose of recommending a cross with the Arab blood; under a supposition that the latter blood has not received fair play of late years, since none but worthless mares are put to foreign horses at the present day. "The fair trial would be," he says, "(supposing an Arabian of good symmetry and appearance, and high blood, to be found), to give him a mare that had bred runners." By this method the author anticipates producing such horses as "Flying Childers, Almanzor, Regulus, Blank, Chaunter, Crab," with a dozen or two others, all in high form, and all the immediate get of different Arabians, and foreign stallions.

When horse-racing was first established in England, we possessed nothing in character with our present breed: the introduction of the Arab, Barb, and Turkish blood was then a decided improvement; and by breeding *out and in* with the indigenous stock of the country, the advantages to be derived were

* Dickson. † Mr. Hanckey Smith.

soon discovered; a new race was immediately established, which, by the cultivation and care of our ancestors, was soon rendered permanent.

> "By gradual use, and long experience taught,
> Art a new race to fair perfection brought."

A race, indeed, at the present day, that is the pride, the pleasure, and the boast of the land that gives them birth.

The question is then, whether it would be advisable to cross again into foreign blood?

The argument held in favour of a cross is, that our present breed of blood horses are degenerating, and are not equal to those worthies of old, as Flying Childers, Eclipse, High-flyer, Matchem, Herod, &c. &c.; and as the Arabians, not only as to appearance, but in point of fact, possess the first claim to native purity of blood, it would be proper to resort to them again, in order to correct that luxurious tendency to increase of flesh, humours, &c. &c. the natural consequence of high food, and a clime less arid.

Another argument adduced to prove the necessity of going back to the fountain head of life, whence they originated, is, that the horses of the present day are not able to carry so high weights over the course as those of former days; and therefore are certainly not so good.

Now with respect to the first part of the subject adduced in favour of a cross, on account of their getting full of humours, owing to the richness of our soil, this, in the language of the Reviewers, savours a little of the figure of speech 'yclept "nonsense;" since it is owing to our soil that we are indebted to our present stock: it is the quality of our grass that gives them the superiority over all other horses of the world.

> "In thee, fair land of liberty,
> Is bred the perfect horse; in *strength* and speed
> As yet unrivalled, while in other climes
> Their virtue fails—a weak degenerate race."

As it regards the present breed not being equal to those of former times, we believe the assertion to be incorrect; for where there was one good horse formerly produced, we possess a dozen at the present time. It is true, and "pity 'tis so true," that our present breed are not capable of carrying such heavy weights as those of former times; but this does not proceed from any deficiency in our present breed, but from the destructive system at present practised of bringing young horses to the starting post. Yet, bad as they are represented to be by those who are advocates for a cross (supposing that a cross would be desirable),

for what quality should we cross with the Arab? Certainly not for speed, as "the most miserable specimens of our race-horses, with all the disadvantages of being confined in the suffocating hold of a ship, and landed in a foreign climate, no matter whether on the frozen shores of Russia*, or the arid plains of India†, with little time allowed for training, walk the course for the best stakes, in the face of the best native breed." It is admitted on all sides, that the immediate produce of an Arab horse and an English mare is worthless; hence it is recommended to wait for the third or fourth. This would possibly be the surest method of ascertaining the truth; but we believe, that even its strongest advocates are unwilling to incur the risk and expense attendant on waiting for the progeny of a fourth cross.

By referring to the Racing Calendar it will be found that in the earlier part of the last century it was an uncommon occurrence to run horses under four or five years old; and that five year old horses were then more common than four. This accounts for the durability and superior speed of Childers, Old Crab, Eclipse, King Herod, &c. &c. who neither of them appeared before they were five years old. We cannot, then, but deeply lament, that so many horses are crippled and *done up*, at an early age, which, had they been allowed the necessary time to arrive at maturity, would have equalled Eclipse and those worthies of old.

How often do we hear of an extraordinary instance of speed exhibited at *two years old*, in consequence of which the colt becomes the rage, and attains an elevation in the sporting circles which he is unable to sustain; for at a time when the greatest speed and strength is expected from him, he deceives his backers, and is immediately put out of favour, and precipitated down the Tarpeian rock of disgrace. The rapid growth of the favourite's popularity is sudden as his downfal; his rise and decline are indeed "pari passu:"—

> "To-day he puts forth
> The tender leaves of hope; to-morrow blossoms,
> And bears his blushing honours thick upon him:
> The third day comes a frost, a killing frost;
> And when he thinks, good easy man, full surely
> His greatness is a rip'ning, nips his root,
> And then he falls, ————————"

* Sporting Magazine, October 1825, "Racing in Russia," &c.

† A singular fact is related in the "Sporting Magazine," by an "Absentee:" he says, "that a match was run in Barrackpore between the English horse "Recruit," and an Arab "Pyramus," who had previously beaten all the best Arabs in Calcutta, carrying weight for inches, and receiving seven pounds besides: the Arab horse was beaten in a canter.

It is not, we repeat it, any fault in the horses, but in the system employed in training and bringing young horses to the starting-posts. They may be compared to hot-house plants; their growth and strength are increased in such an artificial manner, at such an early age, that, when they reach six or seven years old, they are no longer fit for the turf—making good the old adage, "soon ripe, soon rotten;" they either die, or are sold to post-masters, hackney-coach drivers, or butchers; where they are doomed to a life of torture for a short time, a kind of training for the knack-house.

Such is oftentimes the fatal termination of many a good horse; they give the fairest prospect of perfection in the training stable, but from being rode at too early an age, and over-worked when their constitutions are incapable of supporting it, they may be compared to those stars which oftentimes shoot their brilliancies athwart the horizon, as exquisite as their duration is brief.

Natural historians assert, that whatever is formed for long duration arrives slowly to maturity.

The extraordinary means that are resorted to, in order to bring up a two-year old colt, surely never were intended by nature; for by preternaturally hastening the deposit of bone, before the membranous part becomes fully developed, the bones become sooner consolidated, and never attain their natural size and strength.

We are well aware that we are now treading on forbidden ground, by interfering with the "knowing ones;" as the opinions that we have ventured to broach are entirely at variance with the present practices and regulations of the turf—regulations founded on the accidental prescriptions of authority, for which *custom* has procured veneration, but which are opposed to the laws of nature and common sense.

We do not flatter ourselves, by those remarks, with the hope of exciting any permanent impression on the sporting world, as similar opinions have been oftentimes so eloquently expressed in that esteemed and respectable publication "The Sporting Magazine," without any success; for "they will not hear the voice of the charmer, charm he ever so wisely." But we speak to the sympathizing few whose habits are not as yet fixed by the influence of false and corrupt examples, who are not deaf to the recitals of scenes of violence and pitiful suffering of one of the noblest animals in the creation, when forced by goads and whips, by the merciless drivers of butchers' vehicles, hackney-coaches, and fish-carts. But to return to our subject. Circumstances will occur in which it is impossible for the farmer to breed in the manner recommended; in which case he has recourse to a cross. This mea-

sure can only be recommended when no other method will answer his purpose. In this case, it is necessary that the greatest discrimination and circumspection should be employed to adapt the animals in the most perfect manner to the nature of the improvement which is required; for, as we before stated, so much uncertainty attends even the best possible method of breeding, that wherever attention has been paid by breeding from the best and most perfect animals of their kind, the breeder has been oftentimes disappointed, and has been doomed to see his bright prospects "flit like the passing cloud."

If disappointment then ensues, where the greatest care has been paid, we need not wonder to see confusion and mismanagement the effect of breeding from animals that differ in breed, figure, action, and manner of living.

In every instance of a cross, the female should be as large, if not larger, than the male. Experience teaches this plan as the best, it having been long practised by our ancestors.

Passum multa tibi veterum præcepta referre,
Ni refugis, tenuesque piget cognoscere curas. VIRGIL.

Nor thou the rules our fathers taught despise,
Sires, by long practice and tradition wise. SOTHEBY.

we being indebted for our present breed of racers entirely to crossing the indigenous mare with the *diminutive eastern stallion.*

To attempt to improve a breed by putting small mares to large stallions is madness. It is a fruitless effort to counteract the laws of nature; for, in proportion as the male is larger than the female, the offspring becomes deteriorated in form, and is generally narrow chested, long legged, less hardy, and very liable to disease.

"When it became the fashion in London to drive very large horses, the farmers in Yorkshire put their mares to much larger stallions than usual, and thus did infinite mischief to their breed, by producing a race of small chested, long legged, large boned, worthless animals.

"A similar project was adopted in Normandy, to enlarge the breed of horses there, by the use of stallions from Holstein; and, in consequence, the best breed of horses in France would have been spoiled, had not farmers discovered their mistake in time, by observing the offspring much inferior in form to that of the native stallions. When the male is much larger than the female, the offspring is generally of an imperfect form. If the female be proportionably larger than the male, the offspring is of an improved form; for instance, if a well formed large ram be put to ewes proportionably smaller, the lambs will not be so well

shaped as their parents; but if a small ram be put to larger ewes, the lambs will be of an improved form*."

Many breeders who have been aware of the impropriety of putting large stallions to small mares, from seeing its bad effects in various ways, have fallen into the contrary error, by crossing what they call a *large "roomy" mare*, which is generally of the heavy cart breed, with a thorough-bred horse.

Dum vitant stulti vitia, in contraria currunt. HOR.

Whilst fools one vice condemn,
They run into the opposite extreme.

Their object is to obtain a carriage-horse. Thus, by attempting to avoid Scylla, they fall into Charybdis,

"Incidit in Scyllam cupiens vitare Charybdem."

Or, in plain English, "he leaps out of the frying-pan into the fire." This heterogeneous connexion always produces a being as bad as possibly could be generated, possessing a heavy fore-hand, supported by a pair of slender fore-legs, and having all the natural sluggishness and inactivity of the draught horse, without any of his strength; and all the bad properties of the blood horse without any of his speed. In short, an animal suited to no useful purpose; a fit subject for the kennel, or to become

"Luxurious food,
The venison of the prescient brood."

The very distinction of breeds implies a considerable difference among animals in several respects. On looking through "Nature's vast and varied range," we observe the whole earth teeming with rational harmonies; but man—ephemeral, laborious man—in attempting to establish a permanently distinct breed, by bringing together a male and female of qualities and habits essentially opposed to each other, would, if allowed, very soon produce a race of monsters: but fortunately the resistance of nature overcomes our feeble efforts,

"Like a generous horse,
Shews most true metal when you check his course."

By studying attentively the exterior conformation of the different breeds of horses, the peculiar character bestowed upon each, with their wants and habits, together with the admirable fitness for the climate and soil they inhabit, we shall have con-

* Cline's Observations on Domestic Animals.

vincing proofs of the wisdom of the Infinite Intelligence that has adapted them so beautifully to their destinations, and of the ignorance of the doctrines of crossing dissimilar breeds, which nature in its infinite wisdom hath set asunder. We need not say more; for, "on this great theme, kind Nature keeps a school to teach her sons herself."

> Unerring Nature, still divinely bright,
> One clear, unchang'd, and universal light,
> Life, fire, and beauty, must to all impart,
> At once the source, and end, and test of art. POPE.

[To be continued.]

ON HEPATIRRHŒA, HÆMORRHAGE FROM THE LIVER.

By Mr. J. KERR, *V. S., of Southampton, late of the Hon. East India Company's Service.*

To the Editors of "The Veterinarian."

Gentlemen,

Having had, since the publication of Mr. John Field's excellent paper on hepatirrhœa, a remarkable case of that disease, I feel great pleasure in tendering the particulars to your notice, and, if you think proper, request its insertion in your most useful journal: it fully corroborates the above gentleman's remarks.

I have the honour to be, Gentlemen,

Your much obliged and humble servant,

JAMES KERR.

Southampton, Nov. 29, 1830.

ON the 9th of November, about 3 P.M., I was requested to attend at Lady Mary Sheppard's (who was sojourning for a short time in this town), to see a bay carriage-horse, which was jobbed by her ladyship of Mr. Kimber, Brompton Road. Before leaving my dispensary, I inquired of the coachman the particulars: he informed me that the horse had been in constant work, and in apparent good health, since he had known him, which was upwards of a twelvemonth; and had never shewn, during that time, any thing like the symptoms with which he had two hours previous been siezed; viz. a staggering gait, as if he

would have fallen, slight pawing, and sweating profusely. The farrier who was in the habit of shoeing the horses was at first called in by the coachman, who proposed immediate bleeding, supposing, as he informed me, he had inflammation of the intestines. This, I believe, was objected to by Mr. Sheppard, until I had seen the horse. I found my patient to be a bay gelding, aged, about sixteen hands high, and in good condition: he was uncovered, the surface of the body cold, and wet from perspiration; and a deficiency of blood to the skin. The conjunctive, schneiderian, and buccal membranes blanched—scarcely an injected vessel to be seen. The state of the mouth indicated much mischief: it was dry, cold, and the little saliva that was sticking about the tongue was viscid. Respiration slightly hurried; extremities colder than natural; very considerable irritability of the intestines was manifested by the frequency of his voiding his fæces, the fetor arising from which was unusually offensive; but the most remarkable symptom was the pulse—in number 46, but singularly weak, the submaxillary artery feeling nearly empty: the pulsations, however, were regular. From the peculiarity of these symptoms, the whiteness of the membranes, the state of the pulse, and the coldness of the skin, I determined on not bleeding; and I mentioned to Mr. Sheppard that many symptoms indicated internal hæmorrhage.

Treatment.—I ordered the stable to be kept comfortably warm, the horse to be well clothed, and sent Barb. aloes ʒiv, zingib. ʒii, pimento ʒiii, resin ʒv, aqua ℔.iss., to be well digested over the fire, and administered warm. In two hours and a half I saw the horse again: the means prescribed had produced re-action; the membranes still whiter than natural, but redder than when I first saw him; pulse the same in number, but a little fuller (there was now to be perceived a yellowish tinge in the mouth): the surface of the body and extremities much warmer. I now felt convinced that the principal mischief was in the liver, although there was evidently some slight irritation on the lungs, the animal coughing occasionally, and violently. In order to judge of my patient's strength, I had him moved out for twenty yards. The prostration of strength was remarkable, considering that a few hours previous he was in apparently high health. I left him for the night without bleeding.

November 10*th.*—Does not feed: the warmth of the surface of the body continuing comfortable, and the pulse 44, with a little more fulness, induced me to have recourse to careful venesection. After taking away four quarts, the pulse faltered, and I pinned up. On the whole, he bore the bleeding well. Medicine slightly operated.

11*th.*—Pulse 46. Surface of the body comfortable; respiration about 40, v. s. lbs. viss: pulse faltered: pinned up. In other respects shewed no symptoms of fainting. Administered a little alterative medicine.

12*th.*—Pulse 46, and fuller; respiration short and quick, as yesterday; other symptoms about the same. Inserted a large seton in the chest, blistered both sides, and abstracted six and a half quarts of blood, which he bore well.

13*th.*—Symptoms about the same.

14*th.*—Ditto.

15*th.*—Better. During the night considerable swelling of the sheath came on.

16*th.*—Better. Small doses of aloes, and resin occasionally.

17*th.*—Doing well: he is now evidently mending fast: pulse 44. Lady Mary S. being obliged to leave Southampton, the horse was left under my care, and I accordingly had him removed to my infirmary, a distance of half a mile from his former stable. On his way thither the coachman and myself were pleased with his return of spirits and strength, which was manifested by a few gambols on his way: from this time up to the 23d of November he as rapidly recovered his condition as he had lost it; his appetite became voracious, for he ate with avidity every thing that was put before him. On the evening of the 23d, Mr. Wootten, at whose stables I have my infirmary, hurried to my shop, and informed me the horse had fallen in his box, and was extremely bad: this happened on the very evening I intended to have written to Mr. Kimber, informing him the horse was in a fit state to be sent to London. On arriving, the poor animal presented a most pitiable appearance: large drops of sweat were rolling from off his cold skin; the eye was not as though he was suffering from acute pain, but sunken and depressed; but the upper lip was curled, the lower hanging pendulous, shewing the more plainly his grating teeth, and the whiteness of his tongue and gums, which, together with a total suppression of saliva, and a remarkable doubling under of the tongue and keeping it in that position for three or four minutes, and anxiously looking towards his abdomen, shewed him, indeed, a pitiable silent sufferer. The submaxillary artery was still, for it had nothing to contract on. Nothing of course was done for him, being convinced he was dying from internal hæmorrhage: in about one hour and a half he again fell, and died in a few minutes.

The post mortem examination demonstrated my prognosis to be correct: the peritoneal covering of the liver was ruptured completely in half; the liver broken down in structure through-

out its whole substance, and the abdomen contained about four buckets of blood.

Remarks.—It is with considerable diffidence that I venture an opinion on the cause of his first symptoms; but I cannot help thinking they were occasioned by a disorganization of some of the bloodvessels on the surface of the liver, from which a considerable quantity of blood escaped, perhaps gradually: the peritoneal covering would, of course, admit of very considerable distention; and as the flow of blood was not sufficient to rupture the membrane, the pressure of the envelope, and the means adopted to determine blood to the skin, for a time checked the hæmorrhage: the effused blood in all probability coagulated, and the subsequent three bleedings, to the amount of fourteen quarts, for a time stayed the flood. Disorganization rapidly going on throughout the substance of the liver and its surface, and the horse, during the last week he was at my stables, having made blood rapidly, as was denoted by his improved condition and the fulness of his pulse, fresh hæmorrhage took place, tore away the coagulum and peritoneal envelope, giving free exit to effusion; and death followed in one hour and a half.

MINUTES OF EVIDENCE

BEFORE A COMMITTEE OF THE HOUSE OF COMMONS ON THE BILL TO PREVENT THE SPREADING OF

CANINE MADNESS.

[Continued from vol. iii, p. 693.]

Mr. *William Youatt* called in, and examined.

WHAT is your capacity?—Veterinary surgeon.

Where do you reside?—No. 3, Nassau Street, Middlesex Hospital.

Have you been much acquainted with dogs?—Yes.

Do you practise much in the curing of dogs?—My practice has been rather peculiar on that point; I attend to all domestic animals, dogs particularly.

For how many years have you practised it?—Nineteen years.

Have you seen many instances of dogs affected with hydrophobia?—Yes.

Do you consider there has been any great increase in the disorder within the last four months?—Yes.

State your grounds for it?—I have seen within the last four months more than I had seen in any eighteen previous months.

Do you attribute that to the state of the climate?—I am unable to answer the question, as my account of this would be merely conjectural.

State what you think is the cause of that increase?—The disease has arisen solely from the bite of other mad dogs; and more dogs than usual of ferocious habits had become rabid.

Have all those dogs which have been brought to you for cure been bitten?—Many dogs supposed to be rabid have been brought to me that were not so.

Had those dogs any bite upon them?—To that I cannot speak.

You can tell whether you perceived a bite upon them?—I have often examined dogs which had been rolled over, and apparently attacked, and could find no mark upon them, yet they became rabid. Dogs are covered with hair; it is almost impossible to find a small puncture.

Does the wound generally heal before the disease appears?—That depends upon the nature of the wound, and the time of the appearance of the disease.

In what state were those dogs, generally, when they were brought to you, as to temper and appetite?—I hardly know to what you refer.

Were they moping and melancholy mad?—The great majority were in a state which the sportsmen call dumb madness; harmless, and with the lower jaw hanging down.

State what you consider the symptoms of rabies in the dog in its earlier stages?—There are two species of that disease, and the early symptoms of each are very different.

State the symptoms with regard to the dumb madness?—The early symptoms are, disinclination to food, costiveness, a peculiarity of countenance, which sportsmen would recognise: I can only describe it as a mixture of suspicion and uneasiness. The dog will occasionally attempt to eat, but he is unable to chew his food; he drops it from his mouth; the lower jaw then begins to hang down, the tongue to be protruded and to become discoloured; the thirst of the animal increases, and, I may say, is almost unquenchable.

Does he drink?—He attempts to drink; he hangs over the water, lapping it most diligently, till the water becomes covered with the saliva, but does not diminish in quantity.

You did not mention when the greatest quantity of saliva appears?—There is a great deal of error with regard to that;

in many cases of rabies there is no great increased discharge of saliva, and when it appears, its continuance is short.

Have you not always observed spasmodic affections in the throat when they attempt to eat or drink?—Very rarely indeed.

How long does the dog go before the symptoms gradually get worse?—Probably twenty-four or thirty-six hours; then there is weakness, principally weakness behind; an uncertain staggering motion, and a peculiar change of voice.

What sort of change?—The sound which he utters begins with a perfect bark, and ends abruptly in a howl.

In what form does the dog die?—He gets weaker, and dies generally without a struggle; he is worn out by the irritation of the disease.

Do those dogs that are dumb mad bite the same as the other?—Not in one case in twenty.

Have they no convulsive snapping upon them?—There is spasm frequently in the muscles of the cheek: I have not seen the champing motion of the lower jaw.

Have you ever dissected dogs that died with this description of madness?—Yes.

Have you found parts of the neck or head distended in any particular manner?—I have found an appearance about the back part of the mouth decisive of the disease.

What are the peculiarities you speak of?—The enlargement of the little prominences on the back of the tongue. There is inflammation, more or less, in every part of the fauces, and on the epiglottis. The membrane covering the epiglottis is inflamed; and the edge of the aperture leading into the windpipe is likewise inflamed. Those are the marks that are decisive with regard to that part of the animal.

Did you ever kill a dog, and dissect it, when it was first brought to you, twenty-four hours before it would have died from the disease; and did you, in that early stage, observe the appearances in that part of which you speak?—In the early stage there is always inflammation of the fauces and the stomach, perhaps not intense, but there is some.

Can you tell, from your experience, how long after the dog is biten, this begins to appear?—It is perfectly uncertain; from the sixteenth or seventeenth day, to the sixth or seventh month. The average time I take at six or seven weeks.

Did you find any thing particular in their stomach?—There is always inflammation on the stomach.—If there is not dung, hay, straw, hair, or other strange indigestible substances, there is a brownish fluid: the stomach almost invariably contains the

one or the other. There are spots of extravasated blood. If I had found these indigestible substances, and much inflammation, I should at once decide that the dog was rabid: pieces of wood, coals, stones, &c. would lead me to suspect distemper, or teething.

You mentioned another species of madness besides the dumb; describe the symptoms of that?—The furious madness. The very early symptoms would be nearly the same. Dulness, disinclination to eat, costiveness, but accompanied with crossness, gradually increasing. I would take as the first indication of this crossness, the dog seizing the hand of his owner, or the foot, and mumbling it, and not biting it; an inclination to bite, which his affection for his owner represses: I take that as the beginning of it. The eye then becomes bright; there is a glare which is seen in no other disease, and in a large dog it is terrifying. He labours under some delirium, watching imaginary objects, snapping at them, flying at them. He is impatient of control, made fierce at the sight of a stick, or the attempt to strike him. The howl is heard at an earlier stage, and is still more decisive of the disease. If he escapes, or is loose, he will attack every dog he can get at, and frequently other quadrupeds, but not often, except provoked, the human being. But I would say, the degree of ferocity depended on the breed of the dog, and his previous habits. The domestic spaniel and greyhound would, except under circumstances of provocation, rarely or never bite their owner.

State what are the dogs most likely to bite?—Those that are either naturally ferocious, or have acquired ferocity, particularly those which have been trained to fight.

Do you mean a bull terrier?—The bull terrier is even worse than the bull-dog; the bull-dog is seldom disposed to bite a human being; the terrier will bite every thing.

Now state the symptoms of ferocious madness previous to the dog's death.—In ferocious madness the dog is able to eat and drink, and occasionally will both eat and drink in every stage of the disease.

You say occasionally?—In the earlier stages of the disease, in by far the majority of cases, the dog will eat. In ferocious madness he is always able to drink, and he drinks a great deal; but it is not the apparent thirst of the dog under dumb madness, because he is able to gratify his thirst; the other poor fellow cannot.

When the inclination to drink returns, there are other decided symptoms of madness?—There is always an inclination to drink, and he never loses the power to drink.

How long does he continue in this rabid state?—From four to six days.

In what state does he die?—He gradually becomes weaker, principally in the loins; the weakness increases, and he dies, as the other, almost without a struggle.

Do the symptoms after the death of the dogs which die with the ferocious madness differ from those that die of the dumb madness?—There is more inflammation in the back part of the mouth; there is oftener indigestible matter in the stomach, and more inflammation of the stomach: I know no other difference.

They seem merely aggravations of all the symptoms of the other?—Yes.

Did you ever dissect a dog in the early stages of ferocious madness, and was there any difference between the symptoms of the one dissected in the early stages of dumb madness?—In a dog destroyed in the early stage there is evident inflammation, but not so intense; spots of extravasated blood are in the stomach of a dog left to die, which are seldom seen if he is destroyed in an earlier stage.

Can you, from your experience, state what produces the difference between those two species of madness, and whether you consider them merely modifications of the same disease, or distinct disorders?—Modifications of the same disease. I have found, on inoculation from a dog which died under melancholy or dumb madness, that the ferocious madness and the dumb madness have been indiscriminately produced.

Is it your opinion that hydrophobia can be produced by irritating a dog, or by any peculiar mode of treatment, such as bad food, exposure to the sun, or want of water?—No. At the Veterinary School at Alfort three dogs were selected as the subjects of some very cruel but decisive experiments. It was during the heat of summer, and they were all chained in the full blaze of the sun. To one, salted meat alone was given; to the second, water only; and to the third, neither food nor drink: they all died, but not one of them exhibited the slightest symptom of rabies.

Do you suppose this circumstance will predispose a dog to hydrophobia, as that a smaller quantity of virus will produce disease in a dog so treated than in another of a more vigorous state of temperament?—I cannot speak to this from experience.

Have you ever given the virus of a dog in a rabid state in the shape of food to another dog, so as to be taken into the stomach?—Yes.

What effect has it produced?—Not any.

Do you conceive that the virus of the rabid dog may safely be taken into the stomach of either man or animal?—Yes, if the coats of the stomach were sound.

Have you ever inoculated a dog with the virus, and shortly afterwards cut and burnt out the part?—No.

Do you think that hydrophobia can be communicated unless the virus can be made to enter into the circulation, that is, unless the skin be punctured?—Of the skin generally I should say no; but as to the more delicate skin of the lips and mouth, it is a doubtful question, a question to which I could not give a decisive answer; and I would give as a reason, that there are two or three cases on record. There is one of a physician labouring under hydrophobia taking leave of his children, and kissing them; one of them became hydrophobous, the disease being communicated by the kiss. I would state again, that a man died of hydrophobia, who persisted that he had not been bitten by any dog; but it was recollected afterwards, that he had been endeavouring to untie with his teeth the knot of a rope by which a rabid dog had been fastened a few weeks before; therefore it is a question I cannot answer. I attended, a fortnight ago, the eldest son of a nobleman. A little cur, a vermin dog, of which he was very fond, had been suffered to lick his lips. On a certain morning, when the dog came into the room with his valet, he seemed more than usually fond of his master, and insinuated his tongue into the mouth of the young man. The following day the dog did not appear well; the third day a physician who was in attendance on the family saw something suspicious about the animal, and requested that I might be sent for. As soon as I saw the dog I decided that it was rabid. A consultation was then held as to what was to be done with this young man; and we were both of opinion that it was necessary to apply the caustic to the lip, to the tongue, to the palate, and to every part which the saliva could have reached. Before, however, we absolutely determined on so severe an operation, a very eminent surgeon was consulted, and he advised that the caustic should not only be applied to those parts, but to every part of the mouth which could by possibility be got at; and the patient was most terribly punished: for the caustic was applied with great but proper severity to every part that could be reached.

In the two previous cases which you referred to, and which I presume are on record, had it been ascertained that the children had not also been bitten; and also, may not the lips of the person who tried to untie the knot have been sore?—Those are questions

which I can only answer by saying, that they are related in this connexion, as shewing that it is doubtful whether, although the poison will not penetrate the common integuments, it may not be dangerous when received on the more delicate skin on the lips.

In this case of the nobleman's son, is the dog dead?—He was sent to me the next day; and he died the second day afterwards, rabid.

Are those instances recorded in any medical book of authority?—Yes, I believe by Dr. Mason Goode.

Is it your opinion that dogs are most likely to go mad in hot or cold weather, or under any extreme severity of weather of any sort?—I believe, in the ferocious madness, the dog is more disposed to bite in hot weather than cold: the fever runs higher, and he does greater mischief; but otherwise the disease is not more likely to occur.

Have you ever rubbed the virus of the dog into another animal's skin where the skin is not punctured?—I have rubbed a piece of cotton that I had sopped with the saliva of a rabid dog on the gums and lips of a healthy dog without producing the disease; but still, when the other cases are in my memory, I would say again, that I cannot answer the question you put to me before.

Do you consider that the power of communicating the infection arises in the dog immediately after the bite, or only in the earlier symptoms of the disease?—That is another question very difficult to answer. There is a case on record of a dog communicating hydrophobia ten days before there appeared to be any thing the matter with him. He did at length become rabid, though ten days before he was in perfect health. Certainly, however, the dog could not communicate the infection until his own constitution was affected, and that would not be immediately.

Finding, as you did, in the stomach a great quantity of indigestible matter, are you of opinion that did not in any degree increase the disease of the dog?—The depraved appetite I should consider as a symptom or consequence of the disease.

You said just now you tried the experiment of inoculation; you inoculated some dogs with virus, and then waited the progress of the disease?—Yes.

Did they all take the disease?—No: the experiment would fail as often as succeed.

You could find no case rendering one dog more susceptible than another?—No; I have six dogs now under inoculation for the sake of experiment.

How soon after inoculation did the disease appear?—There is a great uncertainty with regard to that.

How was it in those cases you tried?—I should say in not less than three weeks; and varying in the cases which proceeded from artificial inoculation from that to three months.

Which kind of the two, the dumb or the ferocious madness, was the commonest in those cases of inoculation?—It seemed to be a point of indifference.

Was there any difference in the time of the appearance of the two kinds; suppose you inoculated a dog, would the disease appear quicker in the ferocious madness than in the dumb?—I am not aware that it would.

Did they ever recover after the disease appeared?—No.

By no means whatever?—No.

Not of either?—No.

Those dogs that have been brought to you as rabid within the last four months what sort of dogs have they generally been, belonging to people of the better class, or belonging to the poorer class?—Both; a greater proportion, perhaps, than usual, of the higher class than those in a lower situation of life.

Have you seen or known of many cases of madness in dogs that are suffered to run loose about the streets without owners, and generally those which live upon the town?—Those are not the sort of dogs usually brought to me.

Have you known many instances of those dogs going mad?—Yes.

Have you many dogs that have undergone the operation of worming?—Yes, I have wormed a great many.

Do you consider it has any beneficial effect?—Not the least in the world.

Do you consider the symptoms of madness so decided that you can never be mistaken, so as to take a dog that is not mad for a dog which is mad?—No; I am bound to acknowledge that I have often been mistaken in the early stage of the disease.

Of those dogs which have been brought to you within the last four months, are you decidedly of opinion the greater majority have been mad?—I think I can safely speak to at least eighty cases of decided madness.

Within what period?—Since the end of January.

Have any of those dogs so brought to you bitten persons previously?—Yes, many of them.

State about the number that have been bitten to your knowledge?—More than thirty or forty.

Of those thirty or forty, did any of them undergo operations to

your knowledge?—Many of them did; of the majority, however, I cannot speak.

What operation did they generally undergo?—To those whom I knew, and who had sufficient confidence in me to permit me to operate upon them, I applied the lunar caustic.

Did those persons to whom you applied the lunar caustic afterwards sicken?—No: they are all living and well. There is one thing I would beg leave to state, as a fact which I believe will bear upon the object you have in view: I was telling the surgeon to whom I just now referred, that I had operated on nearly 400 persons, and had been invariably in the habit of using the lunar caustic, and not one had died: his reply was, "What is your 400 compared to the number I have seen since I became connected with St. George's Hospital? Myself and colleagues have operated on more than four thousand; and to our knowledge not one has been lost." This I conceive to be a most important as well as consolatory fact.

Have those operations taken place very shortly after the bite?—I have operated as late as a fortnight after the bite.

In that case did the patient sicken?—No.

It was a severe operation, was it not?—The part was nearly healed: it was necessary to re-open it.

From your experience, have you faith in the beneficial effects of the operation by lunar caustic?—I have faith in the destruction of the part; and it is not very material whether it is destroyed with the caustic or the knife.

Have you known cases in which, after the application of the lunar caustic or the knife, the patient has sickened or died?—Not personally.

Do you consider the disease in the dog perfectly incurable if taken in its earlier stage?—As far as my experience or reading goes, there is no authenticated case of cure.

Have you tried the effect of lunar caustic or excision on a dog?—Of both, in I should suppose about thirty cases.

In those cases have the dogs generally gone mad or continued well?—Some have become rabid; one, I should say, in three upon whom the operation has been performed has become rabid. I should trace that to the point on which I was examined before, the difficulty of discovering the bite, owing to the animal being covered with hair.

Has it ever occurred to you, that by any legislative measure the spreading of this disease of canine madness might be checked?—The only measure of which I can be aware, is the lessening the number of those breeds, the cur and the terrier, by which the disease is usually propagated; and particularly,

I would add, in the metropolis; and, indeed, in every part of the kingdom putting down assemblies for fighting dogs.

Do you think it would tend to check the spread of canine madness if dogs were kept at home, and confined during the prevalence of the disease?—Certainly; because then they would not be exposed to infection.

Did an instance ever occur of a person complaining of the bite of a dog, the dog was brought to you, and you found the dog did not die, but that the man was affected with hydrophobia, and died?—No.

[To be continued.]

AN ACCOUNT OF THE HORSE-SANDAL, OR REMOVEABLE HORSE-SHOE,

INVENTED BY MR. PERCIVALL,

(Read by him at the Veterinary Medical Society, Dec. 1, 1830.)

To attach a shoe (or any thing that shall answer the purpose of one) to the foot of the horse without the aid of nails, or by such means and in such manner as shall render it both serviceable to the animal, and removeable by and at the pleasure of his rider, has long been, among the followers of the chase, a thing most desirable to be accomplished. The difficulties presenting themselves, however, in this field of experiment, have proved such as not only to render abortive all hitherto-made trials, but, for some years past, to deter any others from being made at all. The natural shape of the horse's foot is such as to render it very unsuitable for the attachment of any sort of bandage or ligature; added to which, it is a part possessing inward self-motion, and consequent power of variation of shape and volume: two circumstances which (connected with the superincumbent weight the foot has to support, as well as to move with activity under) will be found to oppose considerable difficulties in the way of any one who may engage in an undertaking of this description.

In submitting the present invention to the public, rather than risk any recommendation of it that may appear in the light of undue praise, I shall send it forth "with all its imperfections on its head;" simply setting down such facts as can be readily proved or attested, and, with the possession of them, leaving others to judge to what extent and in what ways it may be rendered most useful.

With a sandal well fitted and properly secured upon the foot, a horse will be prepared to perform the same as though he were

shod in the ordinary mode; at the same time let me observe, that, if there be any one point more than another concerning which I am apprehensive people may run into a mistake in regard to the uses or purposes for which the sandal is either fitted or designed, it is, lest any body should imagine that *it is intended for general or ordinary use*, or in anywise *to supersede the common* (and hitherto unsurpassed) *nailed-shoe*. No such an achievement was ever contemplated! From the very first it was framed simply as a *substitute* for a nailed shoe, and that only in situations where the latter could not be procured; in a word, the sandal was constructed to accompany the fox-hunter in his chase, in order to be ready in case he should "lose a shoe," to supply the place of that shoe, and enable him to continue his chase; and, *if it answers this end, it has fulfilled the design and purpose of its invention.*

On such occasions as the present the inventor is commonly told by some "good-natured friend," that his production is "not *new*," that "similar inventions have preceded it," and, without giving the *poor thing* a single trial, that "it is quite impossible it can answer." Such cavilling, because it ever proceeds rather from envy than argument, in truth, deserves neither reply nor notice; still, what I am about to observe may serve the end of a reply, or, at all events, may be taken as my answer (herewith given beforehand) to all who may feel disposed to set their faces against my invention upon such frivolous and unwarrantable grounds.

Whether a thing be *new* or *old*, I apprehend that its real and intrinsic merits must remain unaltered and unaffected. And I never in my life heard any rational person detract from the credit of another who had introduced some useful invention, merely because he was the reviver or the restorer in place of the inventor of it: for my own part, of the two, I should feel inclined to yield more praise to that person who had saved some serviceable invention from oblivion, than to the original inventor, who had failed in establishing its merits. However, be this as it may, I contend, that, of the present production, I am not merely a reviver or restorer, but "an original inventor;" since this is the first thing of its kind which has appeared before the public with any chance of success.

It certainly becomes the duty, and the interest as well, of every one who brings any new invention forward, to point out its nature, and particularise the uses for which it is designed; but, in my mind, it admits of considerable doubt (in certain cases at least, among which the present forms one), how far it is

proper or politic in him to accompany this account with much in praise of his invention. Unless he himself had entertained a good opinion of his production, he would hardly have brought it before the public at all; and when he has once done so, that disinterested and many-eyed arbiter — the public—is vastly more competent to form a proper estimate, and come to a just conclusion on its utility and value, than the prepossessed inventor himself is. All the puffing in the world will not thrust an unworthy invention down the throats of the public against their more sober and better judgment, however much or long the bantling may have been cherished by its parent; for, even though the cramming system should succeed for a time, still the day *will* come when the apparition will be unveiled, and its unsubstantiality demonstrated. An individual is at liberty to invent or introduce novelties, but it is for the collective body—the public—to stamp the utility or value of such introductions.

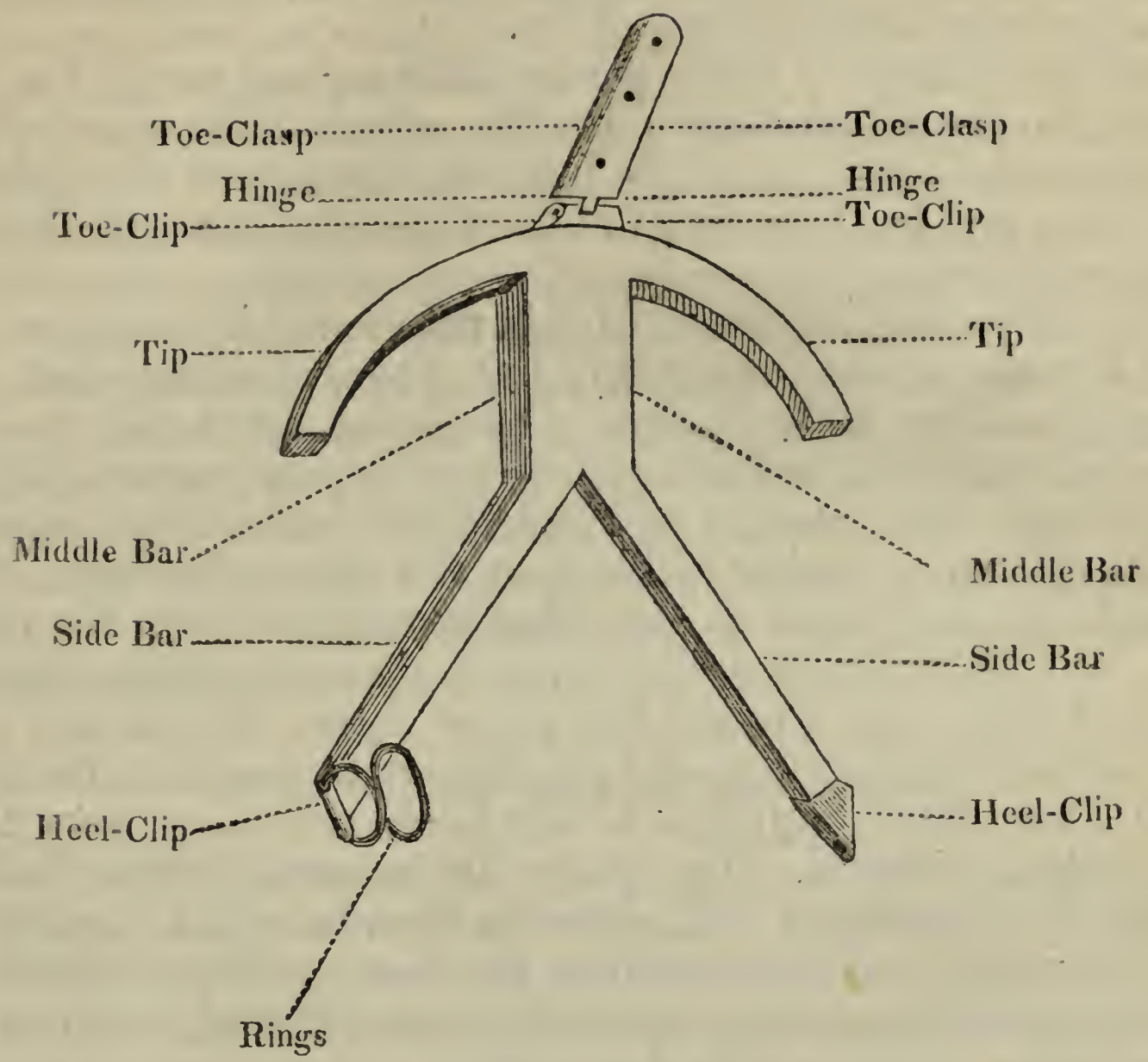
With this preface I shall commence my *description of the Sandal,* succeeding its description with *directions for the application of it,* and concluding with an account of the *uses* for which it appears fitted in sporting and veterinary practice.

DESCRIPTION OF THE SANDAL.

The sandal consists of two parts:—*the shoe*—the iron part, or that which defends the bottom of the foot and sustains the wear; and *the straps* or webbing, whereby the shoe is fastened to the foot.

The Shoe bears much resemblance to the frog-bar shoe some years ago introduced into practice by Professor Coleman. I myself suggested to the Professor, at the time, the expediency of splitting the bar more widely, and making its heels rest upon the bearing places of the common shoe, rather than suffering it to abut against the frog. And I have selected this shape for the shoe of the sandal, as being stronger, and adapted with the least metal to afford the greatest possible cover and protection to the foot. To answer the purposes for which the sandal is intended, it became necessary that the shoe should be light, and conveniently portable; at the same time, it was required to be strong and protective.

For the sake of elucidation, and for more ready reference, to the different parts of the shoe I have appended names: they are, however, but few in number, and are such as seem to me naturally to suggest themselves; and consequently will, I hope, require but to be seen to be remembered. The following diagram will serve to point them out.



From an inspection of the above sketch it will be seen, that the shoe, or iron-part of the sandal, consists of three *principal* parts, to which the others are appendages; which are, the *tip*, so called from its resemblance to the horse-shoe of that name; the *middle bar*, the broad part proceeding backward from the tip; and the *side bars*, or branches of the middle bar, extending to the heels of the hoof. *The appendages* are, the *toe-clasp*, the part projecting from the front of the tip, and which moves by a hinge upon the *toe-clip*, which toe-clasp is furnished with two *iron loops*. *The heel-clips* are two clips at the heels of the side bars which correspond to the toe-clip; the latter embracing the toe of the crust, while the former embrace its heels. Through the heel-clips run *the rings*, which move as a hinge acts, and are double, for the purpose of admitting both the straps. In the plate, the right ring only is represented; the left being omitted the better to shew the heel-clip. These different parts are of different dimensions; the relative proportions of which are regulated according to a graduated scale, drawn from certain averages obtained by the admeasurement of a great number and variety of horses' feet: so that the sizes are so ordered, that almost any horse can be suited with a shoe without any alteration being required.

The Straps, which are composed of web, consist of a *hoof strap*, and a *heel-and-coronet strap*.

The Hoof Strap is nothing more than a plain strap of a certain length, furnished with a buckle, whose office it is to bind the shoe to the hoof; for which purpose it is passed through the lower rings and both the loops of the shoe, and is made to twice encircle the hoof.

The Heel-and-Coronet Strap is not so simple: it is, as well as the former, a continued strap; but, then, it is furnished with two pads and two sliding loops. One, a moveable pad, reposes upon the heel to defend that part from the pressure and friction of the strap; the other, a pad attached to the strap near the buckle, affords a similar defence to the coronet in front. The sliding loops are placed at the sides immediately over the upper rings, in which situation they prevent the strap from slipping. The heel strap runs through the upper rings, crosses the heel, and encircles the coronet; and its office is to maintain the heels of the shoe closely applied to the hoof, and to prevent them from sliding forward. The plate accompanying this Number of The Veterinarian will serve to elucidate this description of the attachment of the sandal to the foot; which, without the power to avoid it, appears somewhat complicated, and not less to the writer, perhaps, than the reader.

APPLICATION OF THE SANDAL.

It may not prove very easy, intelligibly to point out the little dexterity required to put the sandal on the foot, or even to shew the still less knack required in taking it off; and yet, were the sandal for the first time put into the hands of any one at all conversant with horses, he could hardly find himself puzzled in such a simple affair.

The straps, it must be remembered, are perfectly separable from the shoe, and on occasions (such as requiring cleaning) may be removed from it: on the occasion, however, of putting the shoe on, both the straps, with the pads and the loops, are to be arranged in their proper places, so that, as soon as the foot is slipped into the shoe, they may at once be tightened and buckled.

The method of proceeding is this:—Take up the foot with one hand; slip the shoe upon it with the other; and, with the same hand, retain the shoe in its place while the foot is gradually let down to rest upon the ground: as soon as which is done, draw the straps as tight as possible, and buckle them.

In taking the shoe off, the straps must first be unbuckled, and then the foot lifted off the ground.

In putting on the sandal, especial care must be taken that the straps be drawn quite tight *before* they are buckled, and more particularly the coronet-and-heel strap, which is to be always buckled last, *after* the hoof strap. The most effectual mode of accomplishing the necessary tightness is this:—As soon as the foot is set down upon the ground, after the shoe is put on, tighten the hoof strap by pulling, separately, every portion of it; then (when that is buckled) draw, with both hands, both ends of the coronet strap at once, so that the part crossing the heel may be made tense before it is buckled in front. The end of all this precaution is, that the shoe should be so tightly bound to the hoof that no motion exist between them; for, should any clatter of the shoe be perceived while the horse is going, the rider may be convinced that either the shoe does not *fit* his horse, or that it is not *strapped on with sufficient tightness.*

SOME OF THE USES OF THE SANDAL.

The original intention, *the purpose for which the sandal was wholly and solely invented,* was to make it equivalent to supply the place of a lost shoe in the hunting field. No person, who is a sportsman, needs to be told, what a vexatious predicament that man feels himself in who happens to have lost a shoe, either in the middle of the chase, or, worse still, just as the hounds have made their first brush, and are getting clear away with their fox over the open country. Many a time have I heard a man declare he would "give twenty guineas to have his lost shoe replaced." But the disappointment of his day's hunt is not all. He has, perhaps, bruised and broken his horse's foot; and the only prospect he has before him is that of renewing these bruises and fractures, by being compelled to walk his horse bare-foot four or five miles along some stony or rutty lane before he can arrive at a blacksmith's shop; for, should he have a spare shoe and nails with him, still he must find a blacksmith to nail it on; or, could he even nail it on himself, the time required for the performance would lose him the hounds. Whereas, having a sandal with him, he has nothing more to do than to leap off his horse, and speedily buckle it on; a work, to a practised hand, of about a minute: which done, he proceeds on his chase.

No one at all conversant with the nature of the horse's foot and the art of shoeing, can, for a moment, imagine that any shoe of this description can ever be made to answer the end of a nailed shoe: it would evince the height of ignorance and folly to attempt such a thing. At the same time I can take upon myself to say, that the sandal will serve as a *substitute;* and that it is

the only shoe of the kind I ever saw or heard of that a horse could be ridden or driven in, for a distance, at a fast pace.

In addition to serving as a substitute for a lost shoe in the field, there is another purpose for which sandals appear to be well adapted; and that is, for race-horses during the time they are travelling from one race-course to another. In wearing sandals, two great advantages would accrue to them: they would, every day, after having performed their journey, have their feet relieved from all shackle and confinement, and thus be enabled, with more ease, to take their rest, independently of the benefit which their feet would undergo; and, in addition to this, their feet would be ready, on their arrival at the race-course, to receive the plates, without being subject to such a repetition of nailing and unnailing, whereby their hoofs are often split or broken, and thus considerably injured.

No one, who knows any thing about horses, need be told what alteration and improvement that horse's foot undergoes (and in a very short time too) which is freed from the constraint of the *shoe;* emphatically styled, on this account, by Mr. Bracy Clark, the "iron prison." During the time, therefore, that horses are standing without shoes, sandals are found very convenient to exercise them in; or, should the animal be lame, for the purpose of seeing him out in.

From the facility with which they are put on and taken off, sandals may also be made very serviceable to veterinarians in cases of diseased feet; such as may demand daily dressing, and at the same time require exercise.

*** The Sandals are sold by Mr. Tate, saddler, Park Street, Grosvenor Square; and Messrs. Parks and Son, saddlers, Cheapside; where Models may be seen, and every required information obtained. It is not absolutely necessary for the horse to be brought to have a Sandal fitted: one of his old fore shoes, or the print of the foot upon paper, will enable the saddler to send the proper size.

FORM FOR A REGIMENTAL RETURN OF SICK HORSES.

By Mr. J. C. Ralston, *V. S. Madras Cavalry.*

To the Editors of "The Veterinarian."

Gentlemen,

On my arrival in this country, from India, it was with no common pleasure I procured and perused The Veterinarian, from its commencement to the present time. I had not seen it

in India, until, when at Bombay, in June last, preparatory to embarkation, I met with a few of your early Numbers, which had just arrived from Europe for a friend. These earlier Numbers I read with real satisfaction; for in that juvenile stage of its existence, THE VETERINARIAN was at once well calculated to interest, instruct, and stimulate all connected with the profession; and, from its thus fair infant promise, I augured that, on my arrival in England, when I should be able to see all it had achieved, I should neither find the work retrograde nor extinguished. And delighted I am to see it so very much the reverse of either. I am sanguine it is daily progressing to even a wider and more extended sphere of interest and usefulness; though, necessarily, its advances must be less apparently rapid; since in all moral efforts or improvements, we find that, having cleared the first rugged paths, our remaining labours seem attended with less comparative success, in degree. And, why? Because so much finer and more subtle, and therefore less evident to an unexamining eye. But, while I trust I am understood, I can see I am here over metaphysical, in a sense, in my illustration: but let it pass.

I think it is the duty of, and should be a pleasure to, every one desirous of seeing the profession acquire that vantage ground it so eminently deserves, to give the Editors of a work—or rather, I should say, the work itself, at once so meritorious and useful—every support. Such a Periodical may at once be termed a desideratum in the annals of the veterinary art; and it may be viewed as an influential assistant and stepping-stone towards gaining that vantage ground, the profession, it is an organ of and devoted to, is struggling justly for. I can have no interest but the general one: I have, and I am sensible very hastily, taken up my pen to give my humble voice of applause to THE VETERINARIAN, with the least possible delay; and in support of the sentiments I have expressed, I beg to add, I am desirous to come forward as one of your contributors.

What I can offer towards the common stock, I am eager to do. I transmit you my name and address, and will be cheerfully proud to step forward your avowed contributor, whenever I shall feel self-satisfied enough to encourage me to aspire to the honour, by the belief that what I have (ere then) written has been approved of as practically useful.

I went to India in 1827, as veterinary surgeon in the Madras cavalry; and have only returned, on a short leave, on urgent private affairs. My return to India, however, is a contigency; as my health suffers severely in a tropical climate. I have, in a rough way, collected a good many facts connected with the

profession in India, as regards the interests of its individuals there, and their deportment in the service; and as connected with the broader ground of diseases and treatment; and however meagre I may have to regret it all may prove, as contrasted with what it might have been, still with my mite I will come willingly forward. These hurried lines are written to endeavour to catch the close of your publication for this month. Accompanying is a form for a regimental return. You possibly may incline to give it publicity, by binding in a section of a leaf. I do not know that it can be of any use to any other than the army veterinary surgeon; and I am less certain that it can be of any whatever to the British veterinary surgeon; but when I joined my regiment there had never been a veterinary surgeon attached before. A compendious form of return was desirable; and after several attempts, I decided for this. It shews every detail at once; and I think is a good form. Should there be a better, I would be glad to know it; and should any of my brethren approve of this, I should be gratified. I send you with it, to look at, the actual return for one year. I am aware how much there is in it which will not bear a strict eye; but I hesitate not to send it, seeing you can allow for a copy I had no idea should ever meet a professional, much less an editorial eye. It will better convey the idea of the Form; and I request you will be pleased to return it. The Case Book referred to in the Form, I will also send an extract of; and some cases detailed from it. I go into Scotland this month, I believe, and may not be able to write; but hereafter I trust to be a diligent labourer in the vineyard, as far as my abilities will admit; and meanwhile, with every respect and good wish for the success and advancement of THE VETERINARIAN,

I remain, &c.

JOHN C. RALSTON.

London, Nov. 29, 1830.

Sick Lines. — Regt. Lt. Cavalry. } RETURN OF HORSES, AND INDEX TO THE CASE BOOK. { Camp, —— 1829.

Troop.	No.	Colour.	When admitted.	Case.	When discharged.	Remarks, and Index to detailed Cases.
F	54	Bay	1 Dec. 1828.	Strain—shoulder—off side.	10 Mar. 1830.	Case book, page 1.
F	20	..	14	Disease of the neck and jugular vein	18 Feb. ..	.. .. .. 3.
D	13	..	2 Feb. ..	Kick—thigh—off side.	22 Feb. ..	.. .. .. 8.
C	29	..	10	Strain—flexor tendons—off fore leg.	20	.. .. .. 12.
F	Rt.	Grey	9 Mar. ..	Spasmodic colic.	14 Mar. ..	Cordial drench—clysters—and next day physic.
A	57	Chestnt.	27	Œdematous swelling along the belly	17 April ..	Case book, page 5.
B	33	Brown	2 April ..	Strain — flexor tendons — near fore leg.	10	Fomentations—physic—bandage—and cold applications.
D	Rt.	Roan	3	Strain—flexor tendons—both fore legs.	5 May ..	V. S. from the toes—poultices and physic—subsequently cold applications and bandages.
E	Transf.	Grey	9	Sore back.	27 April ..	Discutient applications—physic—inspect the saddle.
A	55	Grey	29 May ..	Diarrhœa.	5 June ..	Case book, page 19.

THE VETERINARIAN, JANUARY 1, 1831.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

COMMENCING the fourth year of its literary existence, and approaching to that development of form and power, and usefulness too, of which such an entity as THE VETERINARIAN is capable, its Editors have to express that gratitude which they will never cease to feel to its foster-parents, the veterinary and the British public, who have united to nurse the bantling to its present growth. The time for profession is now passed; its real character, good or bad, has been, ere this, unfolded. We will only say, that that which the public has made THE VETERINARIAN, it shall continue to be—the instrument of effecting the improvement of the veterinary profession, and more by the excellent and varied contributions to veterinary science which it contains, than by direct attacks on errors and abuses. Now, that it is left alone in the field, and that its pages, at least among veterinary publications, will be the sole depositaries of useful hints or important facts, its Editors deeply feel the increased responsibility they will incur; and they will bend up each corporal and mental energy fully and honourably to accomplish their task.

Although receivers should not be choosers, our readers will not, perhaps, be offended if we hint at the kind of assistance that will be most acceptable to us, and best secure our common object. Any exposure of veterinary abuse, or of those circumstances and that system which have so shamefully degraded us, and authenticated by the name and address of the writer, or, at least, the communication of his name and address to us, and the paper composed in the spirit of our departed friend, whose obituary the present number contains,—"exposing the measure, but sparing the man,"—the offspring of honourable zeal, and not the effusion of disappointment and malignity,—shall find ready insertion; and so shall the defence of the powers or measures that be, written in the same spirit, and authenticated in the

same manner; both will be equally welcome; *but far more welcome will be records of interesting cases or discussions of important points of theory or practice.* We are arrived at that period of progression and reform, that our abuses must gradually disappear; and we want most of all increase of science, and a useful and reputable conception of the principles and practice of our profession.

It will be seen by reference to our title page, that an event has occurred most essentially connected with the improvement of our profession. If, in the language which we not long ago quoted from Mr. Castley, "our art seemed to sink beneath the dignity of collegiate science, and the elder sister appeared to disown the relationship, or, secretly ashamed of the Cinderella, scarcely acknowledged the connexion," the University of London, better adapted than that to which he referred, to the increasing knowledge and liberality of the times, has admitted within its precincts a lecturer on veterinary medicine and surgery. It becomes not us to speak of him who will have the good fortune and the honour to appear as the first advocate of our claims to professional and public regard in this seat of learning; but the competition that will ensue, and here we *will* speak, the *honourable* competition, while it will rouse every power of the new lecturer, will necessarily, and not slowly, bring back the old school to those principles and to that plan from which it ought never to have deviated. We refer to the language of the founders of the Veterinary College (or rather, we believe, we may say, of John Hunter, the life and soul of the undertaking), in their admirable appeal to the public when that seminary was first opened. "The treatment of the diseases of animals being taught scientifically, men of liberal education will cease to look on veterinary medicine as a mean and degrading profession. They will be convinced that its inferiority to human medicine consists not in the arts themselves, but in the relative importance of their respective subjects; and that it deserves to be considered as a distinguished science, occupying an eminent station in the scale of human knowledge."

Has this been the station which the veterinary art has held,

or, for many a year, could hold? Glasgow has lately appointed its veterinary professor; and now, for the first time in the southern part of the British dominions, will the just claims of the veterinary professor begin to be vindicated in another university, and (still in the language of John Hunter) "that ancient error be exploded, that, while medicine is regarded as the province of the learned and the few, the veterinary art is supposed to be on a level with the most ordinary capacities."

In the future conduct of our periodical, therefore, we would earnestly solicit the co-operation of our friends in the gradual accumulation of scientific and practical facts. *Let this be the character of our Journal.* Without farther angry contention, or in despite of it, the improvement of our art is assured. A new æra is preparing to open on the history of our profession. We should account it the proudest achievement of THE VETERINARIAN, if we could unite *all* who are interested in our improvement, in the endeavour to hasten its progress, and that by the contribution of each, according to his situation and means, to the general stock of knowledge.

Review.

Quid sit pulchrum, quid turpe, quid utile, quid non.—HOR.

Traité Elémentaire de Matière Médicale, et Pharmacologie Vétérinaire; par L. Moiroud. Paris, 1831.

POSSESSING no veterinary pharmacopeia sanctioned by the authority of our national school or compiled by any experienced practitioner, and knowing full well that the materia medica of every practitioner has been slowly and hesitatingly selected by him, and is the result of doubtful and often painful experience, and differs materially from that of many of his brethren, and differs *toto cœlo* from the "pocket" one of the St. Pancras College, we observed with pleasure the announcement of the work before us, and we were enabled to procure a copy before the stated period of publication.

M. Moiroud was Professor of Materia Medica and Pharmacy at the Veterinary School at Lyons: he is now Professor of Pathology

and Theràpeutics at Alfort: he therefore brings with him all the authority which station and practice can give, and we expect to find in his work the combined experience of the two old veterinary schools of France, and that not only as it regards the effects of medicines on the horse, but on all the objects of the veterinarian's care.

M. Moiroud enters fully into the natural and chemical history, the preparation, the action on the living system, the dose, and the mode of administration of every drug in the French pharmacopeia, and with reference to every animal. If we were to complain of his mode of treating his subject, it would be, that he treats somewhat too largely of the chemical properties of drugs, and not sufficiently of their medicinal effects, or of the characters of disease in which they are of most use, and the circumstances which may modify or subvert their influence. There is sufficient, perhaps, of their general influence and power, but not of their application to particular and varying symptoms and states of constitution; enough of science, but not enough of practice. It is, however, a very valuable work, as enabling us to draw a fair comparison between the French system of therapeutics and that of the English veterinarian. We abridge M. Moiroud's introductory explication of the principles of therapeutics. If we do not interrupt the narration by any remarks of our own, it is not because we always assent to the theory, but we wish to put our readers in possession of it. He observes, that the action of medicines may be considered as either chemical or essentially vital. In their chemical effects they obey the laws of dead matter; and although the intimate nature of their vital or physiological influence cannot be explained, we can determine the laws and conditions of its influence. These present themselves under two views, a negative and a positive—the first diminishing the intensity of the vital powers; the second exciting to increased action the part to which they are immediately applied, or the frame generally; and this increased action depending on the opposition which exists between the constituent principles of the medicine and the tissues on which they exert their energy: the former repress and calm that vital action which is running into excess; the latter rouse against themselves the vital power which resides in the organs. The former withdraw the organ from certain causes of excitation, or renders it less sensible to excitement, as a poultice shields a phlegmonous tumour from contact with the air, and from other exterior causes of excitement, while it relaxes the tissues, and diminishes their irritability; and as diluting and cooling drinks increase the aqueous part of

the blood, and render it less stimulating. Sedative medicines act principally on the fluids; tonics on the solids.

The immediate action of medicines on the tissues with which they come in contact is the most simple, and generally the most advantageous; their effects, however, are not confined to this place, but, by contiguity of tissue, or by absorption or sympathy, exert a more extensive influence. Of the influence communicated by contiguity of tissue, we have frequent proof, as when we calm the inflammation of the mucous membrane of the respiratory passages by emollient drinks, whose sedative effects are transmitted to these passages through the medium of the pharynx, with which the drink comes into contact; and as emollient cataplasms applied to the loins in inflammation of the kidneys extend their soothing influence through the medium of the intervening tissues.

Of all the means by which medicines extend their action, there is no one so general or so complete as absorption: they are carried into the circulatory current, and conveyed with it to every part of the frame, and thus exert a direct influence on the whole organization. Salts of iron and copper, and resinous substances, administered by the mouth, have been speedily detected in the blood by chemical analysis. Their stay in the circulatory vessels is ordinarily of short duration; for if they cannot assimilate themselves with some organ or tissue, they are discarded by the natural emunctories: thus the cutaneous perspiration, and pulmonary exhalation betray the odour of ether; the milk obtains the bitterness of wormwood, and the urine is charged with certain metallic oxides.

The rapidity of the circulation explains the promptitude of effect often produced. M. Hering proved that it occupied but thirty seconds to carry prussiate of potash from one jugular to the other; and in a few minutes the serous and mucous exhalations were impregnated with this salt.

Many drugs are, however, easily assimilated, of which the combination of the colouring matter of madder with the earthy portion of the bone, the bitter taste contracted by the flesh of animals fed on bitter herbs, and the intimate union of the prussiate of potash with the parenchyma of almost every organ are sufficient proofs.

Many circumstances influence the rapidity of absorption. To produce ready absorption the medicines should be soluble in water and miscible with the blood. Insoluble matters penetrate with difficulty into the absorbents, and often do not penetrate at all. Absorption is slow when the mass of fluid actually in circulation is considerable, and is often rapidly promoted by the

loss of blood. There is an alternate play of the power of absorption between different parts. When intestinal absorption is active that of the skin diminishes. When the animal is fasting, the inhalent vessels of the skin are active. This will point out the proper time to employ medicines that are designed to be absorbed through the medium of the skin. Thus under a severely restricted diet many serous effusions and chronic enlargements disappear.

The structure of the different tissues—their permeability—their vitality—the morbid condition in which they may be, will powerfully influence the phenomena of absorption. It is less readily carried on through the skin than the mucous membranes, and less through them than the serous membranes. If the skin be deprived of the cuticle by means of blisters, many substances will be rapidly absorbed,—a very important consideration in cases of tetanus or impossibility of swallowing. Sometimes this power of absorption, thus increased, is followed by unpleasant effects, as in the production of strangury from a blister.

The nervous system is a powerful agent in transmitting the influence of medicines, not as conveying, like the arteries, the substance of the drugs, but propagating their influence by an action purely vital. All organs are not equally powerful in producing this transmission of influence. The stomach, from its connexion with the brain, the lungs, and the abdominal viscera, holds the first rank. In some cases the medicine has scarcely come in contact with this viscus, ere the most distant organs sympathize, while, perhaps, the neighbouring ones may be unaffected.

This sympathetic action, however, is not so general as that which is to be traced to absorption; but often these two principles, so distinct in theory, succeed each other so rapidly, and are so intimately associated, that we know not to which the effect is to be principally traced. There are some substances, the influence of which is propagated so quickly, and in so remarkable a manner, that they seem to have a perfectly specific action on the nervous system. The hydrocyanic acid affords an illustration of this.

The action of medicines on the animal economy gives rise to a series of phenomena, which are designated by the common title of effects. These differ in their nature, and intensity, and relations with each other; and often appear in succession, and therefore we speak of the primary or immediate, and the secondary or consecutive effects of them. The first are the direct effects of the medicine on certain organs,—easily foreseen, and easily produced, and in health as well as in sickness:—the

second are variable, difficult to see or produce, depending on many circumstances, which we are unable at the time to appreciate, and very materially on the morbid state of the animal, or of certain parts. If a strongly stimulating medicine is given in a case of dropsy accompanied by debility, being received into the stomach, its influence is spread by sympathy or absorption, and the temperature of the body is augmented, and the circulation and respiration are quickened, and the pulse becomes more frequent and stronger, and all the functions acquire an increased degree of activity. These are the primary effects; and being repeated, other effects are perceived, termed secondary: the absorbents are roused and the fluid is taken up, and carried off in the form of urine or of perspiration. It is therefore necessary to study, not merely the primary, but the secondary effects of medicines, which may be beneficial or injurious, which may contribute to the re-establishment of health, or threaten the life of the patient. This is the distinction between rational and empirical practice: the first is directed by a knowledge of the primitive, and, after serious consideration of all the circumstances of the case, an assurance of the secondary effect of certain medicines: the second administers a certain remedy against a certain disease without troubling himself about either the primary or the secondary effects of the medicine.

In studying the character of disease, we are naturally led to consider that those medicines alone will be beneficial which have the property of exciting in the organ a series of actions, opposite to those which caused the disease, or which the disease produced; and this would have the appearance of being the only theory which is sound, or sanctioned by experience. No one would doubt that, in acute inflammation, sedatives would prove the most likely means to abate excessive action; yet there are many diseases, characterized by increased action, which would be aggravated by this course of treatment. There are many chronic inflammatory affections which will only disappear under the exhibition of stimulants.

The skill of the practitioner consists in understanding the indications of the case which come before him; and he will only arrive at these by attending to the kind of disease, its particular form, intensity, seat, causes, tendency towards certain terminations, and many other circumstances which will be overlooked by the careless veterinarian. From a comparison of these he will judge of the indications of cure. He will inquire what he has to do, what object to accomplish. The experienced surgeon knows too well, that these indications will be often multifarious, confused, contradictory. In inflammation of the bowels

with great discharge of offensive fæcal matter, how is he always to determine between the use of a purgative, which the nature of the discharge seems to demand, or that of an opiate, which the irritation of the mucous coat of the intestines as imperiously requires? The difficulty will only be resolved by considering well the balance of indications, and obtaining a perfect knowledge, not only of the evident action of the medicines employed, but of the shades of difference in the action of medicines that have apparently an effect of the same kind.

The effects produced by medicines are controlled by many circumstances. The first and most important is the dose, both as it regards the action to be accomplished, and the extent of that action; and whether the effect is more likely to be produced, and will be more safely produced, by a succession of minute doses, or by the powerful energy of one large one.

The quality of the medicines is an important and too neglected consideration, for the adulteration of the greater proportion of drugs frequently compromises the reputation of the practitioner, and the safety of the animal.

The manner of preparing the different medicaments must not be overlooked. Few of them can be used in their natural state. Care must be taken that they do not derive new and possibly dangerous qualities from the manner in which we are accustomed to prepare them. All drugs should be reduced to the finest state of powder; they will thus spread over a greater number of points at the same time, and produce a quicker and safer action. It is of advantage to give them, if possible, in a liquid form, for they are thus reduced to a state of greater tenuity, and, in the horse particularly, they more rapidly pass through the stomach and small intestines. M. Yvart proved that it scarcely occupies ten minutes for a fluid to pass from the mouth into the cæcum of a horse.

The circumstances of the case will influence the effect of the medicine, as the age, kind, sex, constitution, disease, and degree of strength of the patient, and the nature of the climate, and the season of the year.

Medicines more readily act on young than on old animals. A colt of a year old will require one-third of that which is necessary for a full-grown horse. A two-year old will require one-half, and a three-year old, two thirds.

The varieties of organization and sensibility in our different domestic animals have greater influence in determining the medicine and the dose. Herbivorous animals, from the structure and form of their stomach, rarely vomit; while the vast extent of the intestinal canal in them, causes the medicine to be longer re-

tained. The paunch of ruminants, endowed with little sensibility, almost deprived of vessels, and filled with an enormous mass of food, is, in a manner, unaffected by medicine, and therefore we are compelled to administer it in such a way, that it shall go at once into the fourth stomach.

The skin of the dog, from the feebleness of its perspiratory functions, is little sensible to the influence of diaphoretics, wherefore we trust so much to external applications for the cure of the diseases of the skin in that animal.

Many purgatives violent in their effect on carnivorous animals, as jalap and colocynth, are almost inert in the horse and herbivorous animals. Oil of turpentine excessively irritates the skin of the horse, and the smallest dose of nux vomica will poison the dog; while the goat eats hemlock with impunity, and the pig is uninjured by henbane. It is therefore impossible to assign the proper comparative doses of drugs for all our patients.

The sex of the animal should be taken into consideration. Females are more sensible of the power of medicine than males, and geldings than perfect horses.

Experience alone will acquaint us with the effect of natural constitution; but it may be affirmed, that, in proportion to the natural strength, and endurance, and health of the animal, will be his want of sensibility to the influence of medicine. The habit of taking medicine should be regarded. The organs which have been long or often subjected to the action of a certain medicine, not only gradually lose their power of being excited by it, but their very structure is changed; therefore it is, that animals that could not without dangerous disturbance bear more than a few grains of a drug, in no great length of time are enabled to take many drachms without visible effect. This is more particularly evident with regard to the substances that act on the nervous system.

The nature and character of disease, by changing the structure and sensibility of the organs, will modify the effect of medicine. Some animals have borne, under disease, doses of opium, and various active medicaments, a twentieth part of which would have destroyed them in a state of health. When the medicine is not carried directly to the affected part, medicines can be safely administered to the sick and feeble animals in far greater doses than they would bear in health.

M. Moiroud now proceeds to divide the different medicaments into classes. The grand division is exceedingly simple, into MEDICAMENS DEBILITANS, and MEDICAMENS EXCITANS. By DEBILITANS, he means those which weaken the vital forces, or moderate the undue action of certain organs. They diminish

the heat and sensibility, and inordinate action of the parts submitted to their action, and by regulating the course of the fluids, diminish the excitability of the solids. They do not, like the excitants, manifest their influence by any re-action more or less apparent, but, on the contrary, they prevent re-action, or moderate that which exists. They either withdraw the affected parts from the influence of certain agents which may too powerfully excite them, or render them less sensible to that excitation.

These debilitants are divided into classes: those which tend to soften and relax the tissue of the organs, or which moderate the flow of blood, and the undue action of different organs, and the morbid production of animal heat.

He begins with the first, which he terms EMOLLIENTS and RELAXANTS. Being placed in contact with the skin, they penetrate through its pores, and render it softer and more supple; they penetrate through the cellular texture, under the form of vapour, by a species of absorption, and diminish the redness and pain and heat;—introduced into the digestive canal, they relieve thirst and febrile heat, and cough; and their influence is not confined to the parts with which they come into contact, but by continuity of membrane and contiguity of organs, and by absorption, they gradually affect the whole system.

The principal part, however, of their effect, is to be attributed to the water which serves as their vehicle.

At the head of the emollients and relaxants are placed THE GUMS: we had imagined that, so far as veterinary practice is concerned, they had been sent to the tomb of all the Capulets, but M. Moiroud attributes to them much efficacy.

First is the *gum arabic*—eminently emollient, and used in all acute inflammations of the respiratory and digestive canals, and particularly in red colic, superpurgation, and poisoning with corrosive substances:—dissolved in warm water, or made into drinks with other emollients, or made into a ball with honey:—dose from one to four ounces for large animals, and from two drachms to eight for small ones.

Gum tragacanth—used principally from the great viscidity which it communicates to water, and therefore employed to hold in suspension, or to render miscible, other insoluble or oleaginous substances.

STARCH—useful in acute inflammation of the respiratory and particularly of the digestive canal, and in the dysentery of carnivorous and the enteritis of herbivorous animals. Easy of digestion, and therefore proper for the food of our convalescent patients, and useful when suspended in water in small quanti-

ties, as a fomentation, from its property of uniting with the floculent or greasy matter often found on the skin.

Barley used in the form of the grain deprived of its husk, or of meal. In the former making a refreshing drink when boiled in water, and sweetened with honey or oxymel; used likewise as a lotion or emollient fomentation; and in the form of meal, boiled in water, constituting a bland nourishing drink.

Bran treated with boiling water making a refreshing drink, or a convenient liquid for injections; sulphate of soda or magnesia, being frequently added to it, both as a drink and an injection. The water in which bran has been boiled forming a useful fomentation, and the bran itself with hot water constituting an excellent fumigation for the nose, and an emollient poultice.

Bread yielding to boiling water its starch and mucilage, and therefore constituting an emollient and useful drink, and with water or milk forming a very good poultice.

Dog's Grass (*triticum repens*). The stalk is used for food for horses in some parts of the south of Europe. It is used in the preparation of cooling and refreshing drinks for the human being, and may be thus employed for domestic animals; but yielding only a small proportion of its properties to the water, other substances containing more mucilage are preferred.

Linseed contains a thick drying oil, and a great quantity of mucilage with a small quantity of free acetic acid, and many salts whose base is potash or lime. When boiled, the decoction is viscid and emollient, and is given internally in cases of acute inflammation, and particularly of the digestive passages, or the urinary or genital organs. It is slightly diuretic, owing to the combinations of potash which it contains. In cases of suspected poisoning with acrid or corrosive substances, its viscidity renders it highly useful. It makes a valuable relaxing bath or fomentation. The powder is used alone, or with other medicaments, for emollient poultices.

Hempseed.—This possesses properties similar to the linseed, and is used instead of it either in the form of decoction, or, what is preferable, infusion. The seeds of gourds, cucumbers, and melons, may be employed for the same purpose.

Mallow.—*The common and dwarf mallow* (*malvia sylvestris & rotundifolia*) contain so great a quantity of mucilage, that they are in daily requisition as emollients. The decoction is used externally, or as an injection, and poultices are prepared from the pulpy residue. Linseed meal is added to it for a poultice, to render it more viscid, and prevent it from drying. The flowers are even more emollient, and are administered in infusion in inflammatory affections of the respiratory organs.

Marsh-mallow (*althæa officinalis*). The whole of this plant, but especially the root, is soothing and emollient. Decoctions of it are used as drinks, and clysters, and fomentations. The powdered root alone, or combined with other medicines, is given in inflammation of the respiratory passages. It is made into a ball with honey and treacle. It is a very useful poultice. The dose for the horse and the ox varies from two to four ounces. A decoction of the leaves is principally used for fomentations and injections.

Liquorice.—This root, possessed of soothing and emollient properties, is frequently used, and especially in affections of the chest. It yields its properties both in the form of cold and hot infusion, but it is oftenest given in powder. It enters into all drinks for cough, and gives consistence to all balls or electuaries for the same purpose. The juice or extract is rarely used for domestic animals.

White Mullein (*verbascum thapsus*). Every part of this plant is emollient, but particularly the flowers. An infusion is used in all the cases in which the mallow and the liquorice are indicated. The leaves form a soothing poultice.

Borage.—Every part of the Borage contains mucilage, nitrate of potash, and some other salts. These principles are readily yielded to boiling water, and afford a soothing and pectoral drink.

Common Alkanet and Common Comfrey have the same properties as the Borage, and are employed for the same purposes.

Common Groundsel and Melilot are of the same class.

Olive Oil is employed in acute inflammation of the respiratory or alimentary passages, colic, and intussusception and entanglement of the intestines. In cases of poisoning by acrid or caustic minerals, it hastens their evacuation, or sometimes neutralizes them. In a considerable dose it is a laxative, and employed in obstinate constipation. In carnivorous animals it produces vomiting as well as purging, and therefore is doubly useful when poison is suspected. It is administered alone or with honey, milk, gum, or mucilage, in doses from three ounces to a pound for large animals. It is a component part of almost all emollient clysters. Applied externally, it supples the skin, and calms many irritations of it. Beaten up with lime water, it is an excellent application for burns. Mixed with laudanum, it is a useful embrocation, where there is much irritation and pain. It is a convenient solvent for camphor, opium, and the principle of cantharides, and it enters into a great many unguents, liniments, and plaisters.

Sugar and Treacle.—Sugar is useful in cases of poisoning

by copper, and it favours the healing of some indolent ulcers. Treacle renders the pectoral and demulcent drinks more effectual, and gives form to most of the balls used in veterinary practice.

Honey is emollient and slightly laxative. It flavours many pectoral drinks and renders them more effectual, enters into the composition of gargles and clysters, and is often used to give consistence to balls. The taste of honey is very pleasant to horses, and medicines may sometimes be administered to them sweetened with honey which they would otherwise obstinately refuse. Honey is sometimes applied to recent burns, and to ulcers and wounds much inflamed.

Wax enters into the composition of ointments and plaisters, and is the base of all cerates. Mixed with sweet oil and the yolk of eggs, it has been given as a demulcent.

Milk varies in its properties as procured from different animals. That of the mare and the ass has more serum, and is richer in sugar than the milk of the cow, but it yields less cream and contains less caseous matter. That of the sheep and the goat is thicker, and has more cream, and furnishes excellent cheese.

Milk was evidently designed for the nourishment of all young mammiferous animals. It begins to be secreted in the mother as soon as the offspring is produced; and if it continues after the young animal ceases to want it, it is because man artificially encourages the secretion. As a medicine, milk is an excellent demulcent, and is indicated in all acute inflammations. It calms all internal irritations, and is particularly calculated to combat those that are occasioned by acrid food or caustic poisons. It is used externally to foment irritable and inflamed parts, and for soothing gargles and emollient and anodyne poultices. It is a useful vehicle for most of the medicines given to the dog or cat. The cream, fresh and cold, is advantageously applied to inflamed and tender surfaces, but it must be frequently renewed.

Buttermilk.—This forms a cooling and nutritive drink, and which cannot be too strongly recommended, whether during inflammatory diseases, or the state of convalescence which succeeds.

Spermaceti is softening and demulcent, and is given in inflammations of the intestines, and particularly of the bronchial tubes, in combination with opiates.

Eggs are nutritive and demulcent. Both the yolk and the white are often given to colts and calves labouring under diarrhœa. The calcined shell is cooling and a resolvent. Triturated with rose-water, it forms an excellent lotion for inflamed eyes. United with alum, it takes the consistence of a soft paste, and is applied with success over articular and synovial tumours, and to

promote resolution generally. The white of the egg is the best antidote for the poison of corrosive sublimate, or any of the preparations of mercury; it is also useful in poisonings with copper. The yolk of the egg mixed with a mucilaginous decoction forms a soothing and pectoral emulsion: it likewise serves to suspend resins, camphor, and oil. United with turpentine, it constitutes the common digestive ointment. Mixed with olive oil, it forms a useful liniment for inflamed wounds and ulcers.

[To be continued.]

Veterinary Obituary.

The mourned, the loved, the lost—too many! yet, how few!—Byron.

Mr. John Percivall.

Since the publication of the last number of this periodical, the profession has lost a most valuable member, and one of the editors of The Veterinarian—a father, the memory of whose affection and worth will be long and devoutly cherished. A chasm that will not soon be filled up has likewise been made in a little circle of veterinarians, among whom there exist many shades of difference on theoretical and practical points, and on veterinary politics too, but who are united together by frequent and pleasant intercourse, by unfeigned friendship and mutual esteem.

Mr. John Percivall graduated at the Veterinary College in 1795. In 1796 he was appointed, together with Mr. Coleman, to superintend the veterinary department at the head-quarters of the Ordnance at Woolwich; neither of them, however, received any warrant or commission.

In 1801 he was appointed a warrant officer, and in 1805 was honoured with a regular commission. Six additional veterinary surgeons were then appointed to the Ordnance; viz. Messrs. Stockley, Price, Cordeaux, Cummins, Goodwin, and Coward, and Mr. Percivall attained the nominal station of Senior Veterinary Surgeon to the Ordnance.

The duties of Mr. Coleman were soon confined to the delivery of certain lectures, principally intended for the instruction of the farriers of the Artillery, but on which many of the officers were accustomed to attend, and from which they derived much important information. Mr. Percivall was mainly instrumental

in the establishment and continuance of these lectures: they have, however, ceased to be delivered. The medical superintendence of the horses in this depôt, amounting in time of war to several thousands, was committed to Mr. Percivall. The returns of patients and the expenditure of medicines were made to him at head-quarters from every other station at home or abroad, and he had the preparation of all the medicines consumed at those stations, whether on home or foreign service.

One of the chief duties, and perhaps the most important one, he had to perform, was the *passing* of horses into the artillery, or, in other words, examining them with regard to soundness, fitness, &c. Very many thousands passed through this ordeal under his inspection. While this was his principal duty, it was his forte. He seemed to have an immediate and almost intuitive knowledge of the state and value of every horse. Some notion may be formed of the manner in which he executed this difficult part of his office, by those who recollect of what horses the brigades and troops of artillery were composed in the Peninsula and at Waterloo. The superior excellence of the artillery horses was satisfactorily attested by the Inspector General of Cavalry, who, at the cessation of the war, and when examining the *cast* horses of the Artillery for the purpose of selecting some for other service, emphatically addressed the Senior Veterinary Surgeon—"If these are your *cast* horses, Mr. Percivall, I should like to know what those you retain must be." The result of his *selection* was, that he took every horse of them, and sent them to the dragoon regiments.

Of the foot of the horse there was no better judge than our deceased friend, nor of the true principles of shoeing. His sounder judgment, although it did not effectually control the excursive and wildly theorizing disposition of his constant companion and bosom-friend, the Professor, yet restrained it within limits that were not too unreasonable. The sound, matter-of-fact mind of the one, and the quicker and imaginative faculty of the other, were strongly contrasted, yet they amalgamated happily and usefully for both.

Mr. Percivall improved the opportunities which he possessed for experimenting on the efficacy of drugs on the horse. In this he was afterwards materially assisted by his son. There is not a medicine adopted in human practice, or recommended by British or foreign veterinarians, the power of which on the horse, in every dose and in every combination, he did not put fully to the test. The records of these experiments are numerous and valuable. The writer of this article trusts that, at some future time, they may be given to the public.

Although no one enjoyed more the society of his friends, or was better able or more willing to contribute his share to the pleasures of the convivial hour, he was habitually a regular and a diligent man. His leisure hours were mostly employed in dissection. He was particularly fond of making injective preparations, whether with quicksilver or wax. He often attempted to inject the substance of the brain, the arachnoid membrane, and several comparatively unorganised parts of the frame. He was often successful in thus demonstrating the communication between arteries and veins, and between arteries and absorbents. His preparations of the spermatic chord are delicate and complete.

He first injected the absorbents of the foot; and from several of his preparations Professor Coleman derived much assistance in preparing the plates for his work on the foot. It is to be regretted that that gentleman did not, in spite of the probable modest reluctance of his friend, publicly acknowledge the obligation. "Suum cuique" is an excellent motto in the literary as well as the moral world.

So devoted was Mr. Percivall to this pleasing and useful study, that he collected no less than three museums, the least of which was complete for every purpose of anatomical and physiological elucidation, and particularly rich in morbid specimens, illustrating the progress and change of structure in every disease to which the horse is subject. One of these museums was sent to the Dublin Society; another is deposited in the Riding School at Woolwich; and the last he prepared occupied a room fitted up for it in the Royal Horse Infirmary. It is the largest and best of the three, and contains many curious and valuable specimens, particularly some unrivalled ones of the circulatory system generally, and of the course of the nerves.

Although not the author of any regular work, yet he contributed several valuable papers to THE VETERINARIAN. His cases of "Laceration of the Rectum," and "Stone in the Bladder," in the first volume; of "Worms in the large Intestines of the Horse," and his excellent "Essay on Inflammation in the Foot," in the second volume; and his case of "Tetanus" in the third, will be duly appreciated by the readers of that periodical. THE VETERINARIAN, however, was more deeply indebted to him than this. From his paternal connexion with one of the editors, and the intimate friendship which subsisted between him and the other, he may be said to have been the presiding and controlling spirit. Thus much the writer of this article knows, that there were frequent and anxious deliberations among the three; that John

Percivall was the consistent and strenuous advocate for mingled firmness and moderation; that, after the publication of Mr. W. Percivall's Lectures, and, subsequently, of THE VETERINARIAN, had caused all intercourse to cease between those who, for thirty years, had been brothers, a friendly feeling lurked, or rather was cherished in his mind towards the Professor, and his uniform language to his son and his friend was, "Pursue the course you have marked out for yourselves; it is worthy of THE VETERINARIAN and of you. Attack, expose the measures, but spare the man. You may have your private wrongs—I have—but your work belongs to the public; and dare ever to shew that you are in the slightest degree influenced by malignity or revenge, and I will disown THE VETERINARIAN and you." It may not, then, be going too far to say that, to a very considerable degree, John Percivall gave tone and feeling to this Journal. He was too generous and noble to ally himself with that which had for its secret spring any of the baser passions of our nature. The spirit of him whom both of them knew and loved so well will continue to control and direct the Editors in the conduct of a work anxiously nursed by him in its infancy, and regarded with exultation when it had reached a somewhat mature growth.

John Percivall was, however, more an author in the "Lectures" of his son. Mr. W. Percivall acknowledges, that to his father he was indebted for much, nay, most, of the valuable practical information contained in them. The writer of this obituary has heard Mr. William Percivall frequently declare, that his father took quite as much interest in "The Lectures on the Veterinary Art" as he did himself, and probably a great deal more; and felt as much gratification as did the son in the favourable reception they met with from the public.

Up to the hour of his death he was engaged in veterinary pursuits. At the commencement of this session he was elected President of the Veterinary Medical Society, and occupied the chair whenever his health would permit him to appear among his brethren. His mild and gentlemanly behaviour, and his readiness to communicate a portion of that valuable practical information which he possessed, will not be soon forgotten by any of the members. At the meeting of the Society, twelve days before his death, he officiated as president. He looked better than he had for a long time done; and some were congratulating him on his apparently returning health. He had, a little before, brought to completion "the Horse Sandal;" and he then favoured the Society with a paper which will doubtless appear in THE VETERINARIAN, and be regarded with peculiar interest,

as containing a description of the mechanism and intended use of the sandal, and being the last production of the estimable author.

His death was sudden and awful. On the 11th of the present month he hunted with the Surrey stag-hounds, and returned home about six o'clock to dinner, exceedingly fatigued with the exertion he had undergone; and complained (as had often been the case of late with him) of pain in his head. Soon after this, setting himself down, he swooned away into (what the family imagined was nothing more than a fainting fit, but which, in reality, was) an apoplectic paroxysm, or some approach to it. He, however, quite recovered from this in the course of the evening, and retired early to bed. Next day he felt much better, and was looked upon as recovering from the effects of his over-fatigue; and he arose on Monday morning apparently much amended.

In the course of the day his surgeon saw him, and told him that he was constitutionally "out of order," and that he would send him some medicine, which he did, consisting of calomel pills for that night, and a saline purge for the next morning; neither of these, however, did he live to take. About nine o'clock in the evening, when he was sitting in company with Mrs. Percivall and a young friend who was on a visit, and the orderly corporal was reading to him the day's report of the stables and infirmary, he suddenly cried out, "Oh! what a pain I have here," pressing his hand to his left breast; "and now it is here," as suddenly raising the same hand to his head. Uttering these words, he sunk sideways from his seat, and before any one could possibly assist him, fell on the carpet, and expired without a struggle.

As a practitioner, he was distinguished by the quickness and the accuracy with which he comprehended the character of the disease, and a kind of intuitive knowledge of its course and termination. His practice was, like himself, simple, but decisive, and to the point.

As a man, he will long live in the heart's core of every one who had the honour to know him. There might have been, now and then, an apparent bluntness of manner about him; but while it marked the open, straight-forward character of the man, it often concealed a propriety and delicacy of feeling, not always found where the address is more studiously courteous. No officer was more respected and esteemed by his superiors; no one more idolized by those who served under him. His domestics had grown grey with him—his very orderly was of twenty years' standing.

As a friend, he was honest and faithful: he would serve

where he could, and to the very extent of his power. He would sometimes perform the most sacred but painful duty of friendship—he would admonish, perchance reprove; but it was the friend all the while: we could not for a moment be offended, and we loved him the better afterward. As a husband, he was affectionate and indulgent; as a parent, his whole soul was wrapped up in his son, his only offspring—his hope, his pride, and deservedly so; yet that affection betrayed not by one act of foolish indulgence. To the profession he was *something;* to his friends he was *much;* to his family, *every thing.*

"The elements
Were so mixed in him, that Nature might stand up
And say to all the world, 'This was a man.'" T.

Extracts from Journals, Foreign and Domestic.

Reflections on the Operation of Neurotomy.

By Messrs. Dupuy *and* Prince.

[Journal Pratique, Oct. 1830.]

It is too common to see the most useful discoveries shackled in their progress by the obstacles opposed to them by medical prejudices, prepossessions, or beliefs. The history of every science attests this truth; but perhaps it is never more forcibly shewn than in that of veterinary medicine. If we sought for those subjects which have experienced the longest discussion and the most inveterate opposition, we should pause on those points which are most important to medical study,—on those which, in the clearest manner, establish principles teeming with useful and practical consequences.

Our readers must recollect what an outcry was raised against the work on Tuberculous Affection, published in 1817. To oppose a long-established and favourite doctrine, and to declrae that glanders was not contagious, was considered to be little short of blasphemy. Nevertheless, the storm passed over, and that which was regarded as an error is now received by scientific practitioners as a truth demonstrated by observation and experience. That which has come to pass with glanders will ultimately happen to other discoveries which, doubtless, in process of time, will be duly appreciated. The subject on which we are about to treat offers a striking illustration of these remarks. Neurotomy, notwithstanding its utility, has not wanted its detractors. This operation, for which we are indebted to the English, has not received that candid consideration which the success that has accompanied it merits. Strongly prepossed against

it, many veterinarians rejected it without examination; but others, struck by its advantages, have sought to compare it with the known laws of physiology, and give to its results a rational explication.

The nerve operation, as it is called by Mr. Goodwin, is described in his work in a very imperfect manner. He scarcely indicates the diseases which it is intended to alleviate; and does not even describe the manner of performing the operation: he only says, that the operation consists in dividing the nerve on both the inside and on the outside of the leg, whether it be above or below the fetlock. After having recited many instances of success, the author mentions two mares whose hoofs fell off after the operation; but he insists on the rarity of such accidents.

Knowing this work, we cannot easily reject neurotomy as an unjustifiable operation; nor can we admit it as infallible; and the loss of the hoofs, related by Mr. Goodwin, is a circumstance which ought to excite the attention of all veterinarians. To remove the doubts which he has raised, it is necessary, first, that we should determine what influence is exercised by the plantar nerves on the parts situated beneath the place where the division is made. In default of direct experience, two questions present themselves—whether the plantar nerves preside over the sensibility and nutrition of the parts on which they ramify, or whether they give sensibility to those parts while the nutrition depends on the nervous threads which accompany and surround the arteries.

Anatomy is a science of demonstration, where it is permitted to doubt that which we do not see; and since, till now, no one has seen the nervous threads accompanying the arteries of the limbs, we doubt their existence. Far from believing them unconcerned with nutrition, we think that the nerves composing the axilliary and lumbar plexuses, preside equally over the sensibility and the nutritive and secretory actions of the parts on which they terminate; and we apply this to the two examples of Mr. Goodwin, and ask, if the nutrition of the foot depends on the influence of any other nerves than the plantar, why should the division of these be followed by the loss of the hoof? According to this hypothesis, such an accident could not have taken place; and the consequences of neurotomy ought to be bounded by the loss of the sensibility of the foot. This question, I know, may thus be answered by my opponents: Why, when other operations have been performed in the same manner, have the animals been cured, and the hoofs have not fallen off? The objection is specious: there was the same disease; the operation was performed in the same manner; all the circumstances were the

same, and yet the results were different. Must we, then, regard the loss of the hoofs as a mere accident? Such is not our advice. We can only recognise as the cause of these differences the return of the nervous action, or its entire destruction.

That the history of neurotomy may be complete, we must not only know precisely the diseases which require that operation and their different surgical procedures, but, above all, the organic changes which take place between the extremities of the divided nerve. We know well that it is sufficient to bring into contact the two ends of a nerve which has been cut, in order that its function shall be re-established—that when the nerve has been cut again, the function has returned without other intermediate agency than that of the neighbouring tissues—that if the distance was not too great between the ends, they were speedily united by a substance which was formed between them, and which re-established the nervous influence in a durable manner. We may, then, rest on these propositions, which are demonstrated in order to give those explanations, which, otherwise no direct experience has yet afforded.

The vagueness of the rules prescribed for the operation of neurotomy authorise us to think that the veterinarians who have practised it, have not all of them adopted the same mode of proceeding; and also, that when a surgeon has performed the operation several times, he has each time varied its form. This supposition may be easily admitted. It is natural that a veterinarian who has frequently practised neurotomy should vary the modes, in order to appreciate their value and fix on the best. Thus, if a veterinarian has at one time performed the operation of neurotomy by a simple division, at another time by a second division at the distance of some lines, and a third time by a much more distant re-section, he will, in each case, obtain a different result. The first operation would have no effect; the second would suspend the nervous energy until the formation of the substance or cicatrix which re-unites the divided ends, and the third would have that of destroying for ever the influence of the nerve; and in these three circumstances the parts below the place of the operation either would not be affected, or would be so in different degrees. The first operation would not cause any change; the second, in suspending for a certain time sensibility and the nutritive and secretory phenomena in the foot, might perhaps effect a cure; the third would produce a similar effect; but nutrition and sensibility not being re-established, separation of the horn would be the consequence of the total loss of nervous energy.

We have said that the operation, which, only momentarily destroying the influence of the nerve, permits it to be re-esta-

blished at the end of a certain time, is the only one that can effect a cure. Such is our belief: if it is admitted, according to our belief, that nutrition and the secretions of the foot are not less dependent than sensibility on the plantar nerves; it will follow that those functions must cease in the foot with the action of the nerves by which they are carried on. We ask, what are the diseases of the foot that have not for their cause the increasing action of the nutritive and secretory vessels? For our own part we know of none; and if that is the cause of these diseases, we immediately combat them by neurotomy: by that, the functions of the nerve cease; there is no more feeling in the foot, nor are nutrition or secretion carried on; nevertheless, the circulation goes on as usual, the arterial blood arrives, and the venous blood returns. But this is the place to call the attention of the reader to an important point. Nutrition, as we understand it, is a complex phenomenon, and comprehends three separate actions. The first is addition; the second, arrangement; and the third, the abstraction of certain particles. The two first constitute assimilation or nutrition, properly speaking; and the last is alone opposed to the other two, and forms, if we may so express it, a species of de-nutrition. Now the section of the nerve prevents assimilation, but we are induced to believe does not in the least affect the progress of decomposition in the parts, or the withdrawing of the particles; and that which supports this idea, is, that the blood which returns to the foot has the same venous qualities after the operation as it had before. Thus the section of the nerve having the effect of suspending assimilation, while, at the same time, it permits, if it does not augment, the contrary action, neurotomy will attack those diseases, on the cause of which it must necessarily have a direct influence, and which we believe to be no other than an augmentation of assimilative action. The better to explain our meaning, we will suppose a case—an exostosis; for which the operation of neurotomy has been performed. It is evident that this exostosis, regarded as an augmentation of nutrition in the bone, would cease to increase, because the operation would oppose itself to the additional action of nutritive power; but at the same time that the addition of particles ceases, the subtraction of them continues, and therefore not only the tumour does not increase, but it diminishes, since, without receiving no new particles, it constantly loses those of which it was before composed. Such would be the effects of neurotomy so long as a new substance shall not re-unite the ends of the nerve, and re-establish its influence. If the time that elapses before that event takes place is sufficiently long, the exostosis will have greatly di-

minished, and perhaps may have disappeared, and then the return of the nervous energy will bring with it that of nutrition; the parts will have recovered their sensibility, and the foot will have regained all desirable security. If the manner in which we have explained the consequences of neurotomy is conformable with truth, it ought to happen, that whilst the return of sensibility does not announce the re-establishment of nervous energy, the secretions of the foot ought to be suspended, and the inflammatory phenomena ought to cease. A recent example has proved to us that it is really so: an old shè-ass that we destined for experiment was very lame in one of the fore legs, and only walked on its toe. We divided the perforans tendon, after having previously furnished the foot with an iron at the toe much prolonged. After the operation we constrained the animal to take short and gentle exercise, which we proposed to render each day longer and quicker. At the end of the second day, the forced extension caused by the arm of the lever which formed the prolongation of the toe excited in the whole of the foot and a part of the fetlock the most intense inflammation, characterised by heat, swelling, and excessive sensibility. The idea struck us to excise a part of the plantar nerves; we did it, and almost immediately sensibility ceased below the division: soon afterwards the heat diminished, and then the swelling, and, at the end of a few hours, every symptom of irritation had ceased. Now we ask, could it have been thus if the plantar nerves presided only over the sensibility of the part? It is evident that in destroying their action we caused a cessation of the phenomena which depended on the nutritive agency of the nerves. It cannot, then, be denied that these nerves exercise a very direct and perhaps an absolute influence on nutrition. If now, instead of supposing the operation to be well done, that is to say, with such a loss of the substance of the nerve, that its functions momentarily suspended may be re-established by the cicatrization of the part, we imagine that neurotomy had been performed with the loss of a very considerable portion of the nerve, and that which will for ever destroy the nervous influence: we repeat, that though the operation may be very useful in the first case, it is followed in the second by the loss of the animal. At first the effects are the same, but nutrition is not re-established, and the loss of the hoof is certain.

We are aware that many objections may be raised to this, and that we may be told that our opinions are not supported by direct experience. But there is only one obstacle by which we can be opposed—that is, the question of the re-union of the

ends of the nerve and the re-establishment of its action. If this point were once cleared up, our ideas would acquire the force of demonstration; nevertheless, that which has been proved as to individual cases is sufficiently so as it regards the principle of the thing; and a sufficient number of eminent surgeons have carefully studied the phenomena relating to the divided ends of nerves to enable us to appreciate the results, and apply them to the subject which now occupies us. We solicit attention and careful observation of our readers to this subject of such high interest.

Let us pass now to another point, and see if the operation of neurotomy has always been performed as it ought to be. We have reasoned on supposition that both the nerves have been cut at the same time, and indeed it is thus that the greater part of the authors who have written on neurotomy have operated; nevertheless, is it rational to cut equally both the nerves of the foot, whether the disease of this region be general, or whether it occupies only a part? Without doubt, no; and if this proceeding is good in the first case, it is obviously bad and illogical in the second, where the disease, occupying a circumscribed point, permits us to obtain, by the section of a single branch of the nerve which goes to this point, an effect more advantageous than that which is procured by the cutting of the two plantar branches. The manner of performing the operation of neurotomy cannot then always be the same, and ought to vary with the seat of the disease; we may, nevertheless, offer certain modifications, according as we cut the two plantar nerves or only one, the external or the internal, above the fetlock; or whether the operation is made under the fetlock on an anterior or a posterior branch; or whether only an anterior or posterior branch is divided on each side, or both the anterior, or both the posterior ones. But to apply these principles,—that which is absolutely essential is to determine exactly the seat of those diseases which require neurotomy, and not to make this operation an exclusive means against one kind of lesion only. Most authors, it is true, have avoided this fault: Goodwin, for example, tells us positively to have recourse to neurotomy *for cases that bid defiance to all other means.* But in general it is an error more frequent, that neurotomy is only useful in rare and uncommon cases; thus, in the navicular disease, which, by a singular chance, seems never to have shewn itself but to the authors wh have described it, or rather in cases of occu lt lameness, that is to say, in cases where, being able to trace the evil to no particular part, we fancy it to be every where.

For ourselves, guided by the opinions which we have here

stated, we have no fear of having recourse to neurotomy against affections very different at the first glance, but which consist in an excess of nutrition, and of the nature and seat of which we are consequently well acquainted. We have particularly performed it twice for exostosis, occupying all the anterior face of the smaller pastern. We will terminate our reflections by relating these two cases, because they have furnished us with occasion to apply the principles we have developed of adapting the mode of operation to the seat of disease.

We performed these operations at the school during the present April 1830. The subjects of them were two draught horses: the disease was the same in both of them; it consisted of a uniform, hard, and bony tumour over all the anterior face of the small pastern of the fore leg.

Instead of cutting the two plantar nerves, or cutting only one above the fetlock, it appeared to us much better to operate only on those branches which go to the seat of the evil. Acting on this principle, we excised on the pastern, half an inch from each of the anterior digitated branches. Our operation was crowned with complete success. These animals, on whom cauterization and other ordinary means had been vainly tried, ceased to go lame, and have been since that time capable of full work.

We will here conclude this article: we have attained our end if we have proved that the history of neurotomy is yet imperfect; that the operation ought to vary with the seat of the disease; that sometimes it is necessary to cut the two plantar nerves, sometimes only one; at other times a division of one of them, or of each of them; that on these nerves depend alike the nutrition and the sensibility of the parts to which they are given; that the diseases which require neurotomy may be very different, provided that they are caused by an alteration of the assimilating process; that, to clear up all that belongs to this operation, it is important to determine by experience, whether after the excision the two ends of the nerve will re-unite, how this re-union is accomplished, and what is the nature and the properties of the substance which is produced. What time it takes to form it; what changes happen during that time and afterwards; the sensibility of the foot, its general shape and volume; that of the tumours of every kind which can exist below the section; and lastly, the secretion of the horn.

We had terminated this article, when, making some researches on this subject, we read page 40 of the account of the school at Alfort, for the year 1821, as follows:

A professor of the Veterinary College of London has ima-

gined that, in a case of chronic lameness occasioned by the contraction of the hoof, the section of the external branch of the plantar nerve might still the pain, and consequently remove the lameness, by diminishing the sensibility of the foot. M. Barthelemy, senior, believes that we ought always to consult experience on an object so important. In consequence, he practised the operation of neurotomy on several horses, the state of whose feet seemed to require it, but he has not been able to praise its results; which leads him to think, that if it be a mode of treatment promising some advantages, it can only be in particular cases, and the nature of which it will be useful to determine.

We have translated this long article, because it embodies the sentiments of French practitioners on an operation of much importance, and we think undervalued; and because the opinion expressed, and so much laboured, of the functions of the plantar, and in fact the spinal nerves, is that which we should not have expected from any well-educated veterinarian, and least of all from the professors of a national school.—EDIT.

Miscellanea.

MEETING OF THE HORSE-SHOERS OF DUBLIN, TO PETITION FOR A REPEAL OF THE UNION.

WE copy the following squib from the *Morning Herald* of the 8th of December. The fools who assembled well deserved such a lashing, although we doubt whether their understandings are not too hardened and fire-proof to feel it:—

On Monday "the Horse-shoers of Dublin" met to petition Parliament, not for a repeal of the coal duty, or of the duty on foreign iron, but, so please you, for a *Repeal of the Union.* Doubtless they calculate on a numerous augmentation of *hacks,* as the necessary result of such a measure, and a porportionate distribution amongst themselves of *jobs* in the way of trade. The chair was offered to *Mr. O'Neil,* a distinguished practitioner at *the Swedish bar;* but that gentleman, with characteristic modesty, evaded the honour, which was bestowed on a less celebrated *forge-dust,* whose name lies obscured in a cloud of fuliginous vapour. The meeting was select enough considering:—none of your "common *file,*" your unwashed leather-aproned artificers, but every one as clean as a white tack, and polished up, in dress, &c. *ad unguem* could make them. And to be sure, if they did not hit the nail on the head, it is no matter. Lord

Grey himself was *rusty* in their eyes; whilst Billy Pitt, Castlereagh, and others of the illustrious dead, who had *welded* the two countries together, were very freely voted to a place much darker than the workshops of these reformers of equine understandings. As for the unfortunate devils at Brookes's, who had the temerity to turn their unkicked ——'s rearwards upon Dan, never, since the days of Polyphemus, was such a *vulcano* of invective poured out by or upon any set of scamps in the creation. A Mr. Brannagan delivered himself in a very happy strain of *iron*y, and the speech of Tim Rooney the less was replete with many a brilliant *spark*. Both these orators were cheered, and urged forward by animating *bellows* of applause. So many, and energetic, and *timed* were their blows with the *hammer* of reason on the *iron* of their hearers' understanding and loyalty, that they *bent* them as they liked, and the *shoe* fitted to a T, and the hall resounded more melodiously than the most musical *anvil* that ever responded to their efforts. Their enthusiasm was not *forged;* their arguments were all *steeled at the point*, and fireman and doormen seemed determined to *strike while the iron was hot*. The union pressed upon their *sole;* the *nails* that united them with England *were driven far too close*, and they swore that they would no longer be *pricked and stubbed, and pared to the quick, and confined at the heels, and overreached, and bruised on the corns, and cankered, lamed and foundered*, by any *iron-hearted* tyrant. If they put *iron fetters* on the feet of their horses, they scorned to wear them themselves; and they would continue to *blow* the *coals* of agitation, until the whole country was *in a glow*, and *far too hot* to hold their opponents.

It is needless to say that, usually favourable to a *remove*, the *breaking-up* of an administration which has too long *rode rough-shod* over the people, was hailed by this assembly with applause; at the same time that many a fervent prayer was breathed, that the *new set*, although now seemingly well *clinched*, might *wear out* before long.

A dinner followed, at which every gentleman cleared off his *heeltap* with due loyalty, and a most striking display of native talent ensued, for if such *artistes* possessed not the gift of the *tongs*, who would? Most of the company went home ere the hour for opening the forge, and, like their customers, *upon all fours*.

TO CORRESPONDENTS.

Mr. C. will perceive the reason of the temporary omission of Mr. Youatt's Lectures.

Mr. Wilkinson in our next.

Mr. Sinclair's communications would be very acceptable. Many thanks to him for some useful hints: they shall be attended to in future.

THE

VETERINARIAN.

VOL. IV. FEBRUARY, 1831. No. 38.

ANATOMY OF THE HORSE.

[Continued from vol. iii, p. 665.]

MUSCLES OF THE HIND EXTREMITIES.

THE muscles of the hind extremity are invested and closely compacted together by a subcutaneous covering, in part tendinous and in part cellular in structure (according to the different structures in the vicinity from which we find it to be derived), to which we may give the name (analogically) of *faschia lata.* In front of the haunch it is derived from the panniculus and crural arch, and is both fibrous and cellular in composition; on the outer side of the haunch it is continued from the tensor vaginæ, a muscle that may be said to belong or have an exclusive relation to it; on the inner side, it is continuous with the faschia superficialis abdominis, faschia scroti et pubis, and is entirely cellular in structure; and posteriorly, it is connected with the faschia lumborum. The principal fixed points of attachment of this faschia are, the anterior spine of the ileum, the pubes, the coccyx, the trochanter minor externus, and the patella. Inferiorly, it spreads upon the muscles of the leg, giving them a compact investment, which portion of it may be denominated the *crural* or *tibial faschia:* it derives various fibrous additions from the tendons of the gracilis, sartorius, semitendinosus, triceps, &c., and finally vanishes in expansion over the hock. The external surface of the faschia is adherent to the skin, through the intervention of a delicate cellular tissue; there being included between them, besides more or less adipose matter, the subcutaneous bloodvessels, nerves, and lymphatics. Its internal surface is applied to the muscles themselves, and between several of them it sends down processes which take root in the bone. From the faschia itself in some places the muscular fibres appear to arise.

The use of the faschia lata appears to be, to give both power and effect to the muscles during the time of their action, by retaining them in their respective places and relative positions, and keeping them closely and compactly braced together.

MUSCLES OF THE HAUNCH.

1.—GLUTEAL REGION.

Comprehending the three gluteal muscles, which compose the superior part of the haunch or quarter.

GLUTEUS EXTERNUS.—*Ilio-trochanterius Medius.*

Situation.—Mesio-external part of the haunch.

Figure.—Triangular: base presented upwards.

Attachment.—Superiorly, to the antero-superior and inferior spines of the ileum, to the spine of the sacrum, and to the faschia lumborum; inferiorly, to the trochanter minor externus.

Relations.—Externally, with the faschia and skin; internally, with the gluteus maximus; anteriorly, with the tensor vaginæ; posteriorly, with the biceps adductor.

Direction.—Convergent, from the several superior attachments to the trochanter.

Structure.—It is constituted of two fleshy divisions, having a broad interval between them filled by aponeurosis. The anterior or smaller division is tendinous superiorly, and internally its fibres are interlaced with those of the gluteus maximus. Inferiorly, both portions unite into one common, triangular, fleshy belly, which ends in an aponeurotic tendon; and from this are sent down processes to the tibial faschia.

Action.—The same as the other glutei.

GLUTEUS MAXIMUS.—*Ilio-trochanterius Magnus.*

Situation.—Anterior, middle, and external parts of the haunch.

Figure.—Pentagonal; sides unequal; angles rounded; lowermost angle extended.

Attachment.—Superiorly, to the spinous and transverse processes of the two or three last lumbar vertebræ, to those of the two or three uppermost sacral, and to the faschia lumborum; also to the crista of the ileum, its dorsum and posterior spine; lastly, to the sacro-sciatic ligaments. Inferiorly, to the trochanter major.

Relations.—Externally, with the gluteus externus and skin;

internally, with the dorsum ilei and gluteus internus; anteriorly, with the tensor vaginæ; posteriorly, with the lumbar and sacral spines and biceps adductor.

Structure.—This is a pulley muscle, coarse and dark-coloured in its texture; wholly fleshy, excepting some broad tendinous intersections, which, at the trochanter, become formed into a broad flat tendon, which is surrounded by fleshy fibres.

Action.—The same as that of the next muscle.

GLUTEUS INTERNUS.—*Ilio-trochanterius Parvus.*

Situation.—Deeply placed, underneath the preceding muscle.

Figure.—Fan-shaped; its fibres describing two contrary curves.

Attachment.—Superiorly, to the dorsum ilei, as high up as where the gluteus maximus ceases to be attached, and as far back as the border to which the sacro-sciatic ligament is fixed; inferiorly, to the (anterior protuberance upon the) trochanter major.

Relations.—Externally, with the gluteus maximus; internally, with the ilio-femoral articulation.

Structure.—Principally fleshy: inferior portion intersected at regular distances by layers of tendon, which at the trochanter become united together into one broad flat tendon, curiously grooved (in radii) upon its external surface.

Action of the Glutei.—These muscles are extensors either of the os femoris upon the pelvis, or of the pelvis and loins upon the hind quarter. When the limb has been carried in advance under the body by the muscles of the anterior femoral region, and the toe firmly set down upon the ground, the glutei, by extending the haunch, will carry the trunk forward; thus becoming potent agents in progression; and of them the maximus is by far the most powerful. In the acts both of rearing and kicking these muscles are thrown into violent and forcible action: in the former act, the limbs become the fixed points; in the latter, the trunk.

2.—PELVI-TROCHANTERIAN REGION.

These muscles are but small, and are all attached to the trochanter major.

PYRIFORMIS.—*Sacro-trochanterius.*

Situation.—Supero-lateral parts of the pelvic cavity.

Figure—Conical: base turned forwards.

Attachments.—Within the pelvis, to the tranverse processes of the sacrum, and infero-internal part of the ileum: without the pelvis, to the hollow behind the trochanter major.

Relations.—Superiorly and externally, with the pelvis; inferiorly and internally, with the peritoneum: along its inferior border run the obturator bloodvessels and nerves.

Structure.—Composed of a fleshy belly, having its superior border tendinous; which border, after the muscle has passed through the sciatic notch, gives origin to a slender tendon that insinuates itself between the gemini to gain the trochanter.

Action.—To assist in the extension of the haunch.

OBTURATOR EXTERNUS.—*Subpubio-trochanterius Externus.*

Situation.—Deep-seated, in the supero-internal part of the thigh.

Form.—Quadrilateral, and putting on the appearance of a *double* muscle.

Attachments.—Internally, to the external border of the obturator foramen, and to the external surface of the obturator ligament: externally, to the cavity behind the trochanter major, and to the upper portion of the ridge extending from the larger to the lesser trochanter.

Relations.—Posteriorly, with the biceps abductor; superiorly, with the gemini and obturator internus; internally, with the adductor magnus.

Direction.—Outward.

Structure.—Attachments both tendinous and fleshy; surfaces striped with apeneurotic tendon.

Action.—To assist in the extension of the haunch; and at the same time to rotate it outwards.

OBTURATOR INTERNUS.—*Subpubio-trochanterius Internus.*

Situation.—Upon the lower side of the pelvic cavity.

Form.—Circular border, having radiating fibres converging towards one common centre.

Attachments.—Internally, to the internal border of the obturator foramen, and to the inner surface of the obturator ligament: externally, to the root of the trochanter major.

Relations.—Superiorly, with the peritoneum; inferiorly, with the obturator ligament.

Structure.—From the foramen the fleshy fibres converge and form a belly which passes between the tuberosity and

spine of the ischium, and then makes its appearance without the pelvis, in the vicinity of the hip joint.

Action.—To approach the trochanter to the pelvis; the effect of which will be to turn the haunch outwards.

GEMINI.—*Ischio-trochanterius.*

Situation.—Without the pelvis, at its postero-inferior part.

Form.—Thin; flat; quadrilateral.

Attachments.—Internally, to the supero-posterior part of the ischium; externally, to the root of the trochanter major.

Relations.—Posteriorly, with the biceps and obturator internus; superiorly, with the gluteus internus; inferiorly, with the obturator externus; anteriorly, with the hip joint. The sciatic nerve crosses this and the other muscles, entering the trochanterian hollow.

Structure.—This is a pale delicate muscle, tendinous as well as fleshy at its attachments: in the middle, fleshy altogether.

[To be continued.]

Communications and Cases.

Ars veterinaria post medicinam secunda est.—VEGETIUS.

ON THE USE OF THE STOMACH PUMP.

By J. WILKINSON, *Esq. V. S. 17th Lancers.*

HAVING fully satisfied myself of the very great benefit to be derived from the use of the stomach-pump in veterinary practice, I think it but just to my fellow-labourers in the field of research and improvement, to give them an opportunity of trying what good may be achieved from, at the very least, a facility of administering medicine in a state of solution, with the most scrupulous accuracy. I have used one now for four years with unremitting success, and with as little trouble as the common means adopted in ordinary cases. It has not only been very useful in the regulation of quantity, but has in several instances been quite indispensable, inasmuch as I have not been able to effect my purpose by any other means. It is useful in the administration of almost all descriptions of medicine soluble in

water, or other innoxious medicine; and I wish to mention cathartics in particular, as I am convinced that the operation of aloes will be very greatly faciliated by being given in a state of solution. I mean not only expedited, but rendered far less likely to produce partial irritation in the stomach and small intestines, as very often happens when a ball is given, and the chance of failure is prevented, which sometimes arises when the medicine passes through the stomach without having been sufficiently dissolved to produce the wished for effect on that important and sympathetic organ. I have no wish to relate the particulars of a case where a female had taken a strong solution of oxalic acid, in which I was as fortunate in the use of the pump as I have been in its application in several cases in the practice of my own profession; one or two of which I will briefly detail, in the hope that the apparatus may (divested of the plausibility of its more diffusible utility) be considered to possess as much novelty as will recommend it to the notice of every veterinarian: and I do not hesitate to say, that all who add it to their number of instruments will, as I have done, find it a very great acquisition.

The first case I shall mention is one of tetanus. I was, in the year 1828, requested to see a six-year old mare, that was said to be "stiff and unable to eat." On examining the animal, I found she was suffering the horrors of tetanus, and had, as the groom expressed, "been getting worse for the space of three days." I made every search for a perceptible cause, but was unsuccessfull; and from her history I could not find any thing in the shape of a probable cause, except her having been exposed to a very inclement night's weather. Having no locality to sooth or disturb, I attacked the whole frame. I introduced setons, with an ointment of corrosive sublimate, on each side of the spine, from the ears to the posterior part of the loins. I requested that simple enemas should be given every half hour (if regularly discharged), until the bowels became relaxed. I then introduced the œsophagus-tube through the side of the mouth, and injected a solution of aloes, equal to six drachms, into the stomach; after which I injected three quarts of warm water. With a request that the patient might be as little disturbed as possible, and in particular that she might not be exposed to the great excitement which loud or sudden noises produced, I left her in the early part of the afternoon. Next morning I visited the mare again, and found that the symptoms were as violent as on the preceding day; but that the cathartic dose had had the wished for effect, with the only difference of a more drastic power in the quantity of aloes than I ever observed under similar circumstances. The animal evinced great thirst, and when offered water was unable

to swallow. I again used the pump, and with great ease gave her a gallon of gruel. In this way I went on, mixing daily two drachms of emetic tartar and one of nitre, and occasionally two drachms of aloes in the gruel, until the mare was able to eat and drink, which was at the end of the second week. The setons were kept in (after the first set) with digestive ointment, for about a week after the use of the pump had been dispensed with. In a short time the patient lost every vestige of the disease, and very little condition; the latter I impute to the way she was supported by gruel, and not having lost more than three quarts of blood.

The next case is a brown mare, which was reported to be off her feed, and extremely heavy. I immediately examined her, and found that she had considerable fever and difficulty in breathing, such as I have frequently observed in common strangles. There was an extensive discharge of glutinous saliva from the mouth, and a frequent cough, which the suffering creature attempted to suppress. The head was quite fixed, and the eyes staring. The under jaw moved occasionally, but without that grinding noise which is often heard in the last stages of acute inflammation of the lungs or bowels. The parotid and submaxillary glands were a little enlarged; and the larynx appeared as if it were pressed downward. With much inconvenience I passed my hand into the fauces, which I found very hot and tender to the touch, but was unable to find any limited tumefaction, which I was prepared to expect. The mare exhibiting symptoms of thirst, I offered her water: she attempted to drink, but the powers of deglutition were quite suspended, and the water returned by the nostrils and mouth. Taking, therefore, all the symptoms collectively, I felt I should be acting with prudence by pursuing the soothing system. I accordingly applied a very hot bran poultice to the throat, and caused the patient to inhale a thick vapour from hot water, in which was immersed a lock of hay, by moving which, the groom was able to increase the volume of steam, and thus keep the affected part constantly exposed to a vapour bath. This is a most favourite practice of mine in all catarrhal and bronchial affections. Holding myself in readiness to perform tracheotomy, which the increasing difficulty of respiration caused me to anticipate, I continued the same treatment until the evening of the second day, when I thought it high time to make some arrangement for the removal of the discomfort which the poor sufferer exhibited, not only from pain but hunger. I therefore had some gruel made, and having adjusted the stomach pump; I injected upwards of six quarts of strong decoction of oats: I again attempted to introduce my hand into the fauces, but the irritation

which I produced was so great, that I was obliged to desist. During the night I had all my apprehensions confirmed by the sudden bursting of an abscess, which instantly relieved the impeded respiration; and I expected that the pharynx would have partaken of the relief, but in this I was disappointed, for on offering her water it was returned in the way I have mentioned above.

Next day, and so on till the fifteenth of her illness, I continued to use the pump, principally for the support of the animal, but occasionally to give a little opening medicine, &c. On the sixteenth day she was able to swallow a little fluid and a small quantity of well-masticated hay. If allowed to help herself, she would invariably cough back through her mouth and nostrils whatever she attempted to swallow. This subsequent malady by degrees became less evident, but did not disappear until the termination of more than two months, a fortnight after which I repeated a blister on her throat, and turned her out to grass. She is now in the ranks, and (with a slight occasional cough after drinking, which may arise from other causes) has no remains of the disease.

I have used the pump by way of experiment, and have had a very cathartic effect from four drachms of common Cape aloes in seven hours. The one I have used is precisely like the stomach pump used for the human subject; and I shall apply it in all cases of suspension of deglutition, or when an animal refuses food (when nourishment is necessary) and becomes emaciated by inanition. I wish to add, that there is much improvement to be made in the description of the instrument; and shall take an early opportunity of describing one I have in contemplation, if, when completed, I shall find it answer.

MINUTES OF EVIDENCE

BEFORE A COMMITTEE OF THE HOUSE OF COMMONS ON THE BILL TO PREVENT THE SPREADING OF

CANINE MADNESS.

[Continued from p. 24.]

Dr. *Anthony Todd Thomson* called in, and examined.

ARE you a physician?—Yes.

Where do you reside?—No. 3, Hinde Street, Manchester Square.

Do you understand the complaint which is called hydrophobia?—I have seen instances of it.

Have you visited patients under that complaint?—I have.

State whether it has arisen from the bite of a dog?—In all the instances that I have seen, the disease has arisen from the bite of a dog or of a cat; but in some instances of which I have read it has also originated from the bite of the wolf and the fox, as well as of the dog and the cat. I have never seen any instance of the disease produced by the bite of the wolf or the fox; those instances which I have seen have originated from the bite of a dog or a cat. I have seen only one instance from the bite of a cat.

Did that patient die?—Yes; in every case of hydrophobia that I have seen the patient has died.

Are you aware that in those instances any operation took place after the bite?—In two cases the operation of excision was performed, but nevertheless the patients died.

Was the excision performed very shortly after the bite?—Very shortly; almost immediately. In the one case, I should say, that it is probable the excision was not effectually performed; it was not deep enough. I refer particularly to the case originating from the bite of the cat. The operation was performed immediately after the bite was inflicted.

What time after the bite did those cases take place?—In the case of the cat, about six weeks; in the other cases that I had occasion to see, from five days to two months.

Have you ever attended patients who have been bitten by dogs in a rabid state, and where excision has taken place within a short period, where the patient has recovered?—In many instances the disease has not occurred; in two cases, the disease occurred after excision.

Have you, in any of those cases where the disease has not occurred, ascertained the dog was really mad?—In some instances, but not in all.

Did you ever ascertain, when the patient had died, that the dog was not mad?—No, the dog was always rabid.

State your opinion as to when and how the disease is generated in the dog?—I scarcely feel myself authorized to give an opinion in reply to that question; but I should say, as far as my knowledge extends, that the disease in the dog has always originated from the bite of another rabid dog.

In those cases you mentioned where death occurred, do you mean the dog was mad at the time of the bite, or became mad afterwards?—At the time of the bite.

As far as your experience goes, the original cause of rabies is biting?—Yes, as far as my experience goes.

Have you any opinion which you would like to give the Committee, differing from that of your experience?—No.

Have the number of cases of hydrophobia to which you have been called in been more numerous than usual within the last four or five months?—I have not seen one case within that period; I have heard of many, but I have not seen one.

Now as to the effect of the virus of a dog in a rabid state, do you think it could be safely taken into the stomach, provided the coats of the stomach were in a sound state?—Undoubtedly.

Do you think that the virus might be safely rubbed into any part of the person, provided there was no puncture or cut in the skin?—I think all experience tends to make me believe so (I have had no experience of my own to form an opinion one way or the other in that respect). From the nature of the animal economy, however, and the action of the other animal poisons, I should say, that rubbing the virus on a sound skin could not communicate the disease.

Two cases have been stated as being on record; one, in which a person near death, from hydrophobia, kissed one of his children, on which the child went rabid; the second, the case of a person untying a knot in a rope with his teeth, by which a rabid dog had been fastened up, on which he also became affected with hydrophobia: do you not think that the probability is, that in the first case the child must also have been bitten; and in the second, the lips must have been sore, to produce the effect stated?—I think, if the cases be well authenticated, that, in the first instance, there must have been a chap or some small abrasion, or some sore or ulcer on the lips of the child; and the same must have existed in the second case also; but I doubt the authenticity of both cases.

You state very confidently your opinion, that the disease can only be communicated by the virus being taken into the system by means of inoculation?—Yes; the disease can originate from no other source in man.

Is there any complaint so like it that you may mistake it for hydrophobia?—The symptoms are peculiar to itself, so that the disease cannot be mistaken by an observing physician.

Is there any complaint which ignorant people would be likely to take for that disease?—I think all cases in which hydrophobic symptoms occur (I mean in which there is a dread of water) might be mistaken for hydrophobia. It is a vulgar error that patients in hydrophobia are mad; they are not mad; there is no such thing as madness connected with the disease: it is a disease of the respiratory nerves; its chief seat is in the cervical, dorsal, and lumbar portions of the spinal column.

Do you think that, when people having no medical knowledge tell you that a man has died of hydrophobia, it is very probable the complaint is mistaken for some other?—Very probable.

But with well-informed men such a mistake cannot take place?—No.

How long have you been in practice?—Thirty years.

In your opinion, is the disorder of hydrophobia increased much of late years?—I cannot answer that question from my personal knowledge; but I should say, that, from the accounts in the newspapers, it has very much increased. The first twenty years that I was in practice I never saw a case of hydrophobia, and scarcely ever heard of any. Within the last ten years I have seen three cases, and heard of many.

Heard of many, from whom?—From medical authority.

Do you consider that hydrophobia never arises except from the bite of some rabid animal?—Never, in man.

Do you consider hydrophobia, if taken in its earlier stages, is a disorder perfectly incurable?—I can hardly comprehend that question. Do you mean by its earlier stages, after the symptoms of the disease have shewn themselves?

I would rather ask, after the bite of a mad dog?—Many persons have been bitten by rabid dogs who have never taken the disease: from personal knowledge I cannot say what average of those who have bitten become hydrophobic; but the general feeling in the profession is, that not one in twenty that are bitten takes the disease. This can be explained, in some degree, by the periods in which the individuals were bitten; for example, if ten men were bitten in succession by the same dog, it is very probable that if the first two took the disease none of the others would take it, because the virus was wiped off from the teeth before the bites were inflicted on these eight persons.

And in biting through clothes the teeth are also cleaned?—A man is much safer who is bitten through his clothes than when he is bitten in a naked part.

Do you consider that there is no medicine nor remedy which has the power of mitigating or curing the disease?—Of mitigating there is, but not of curing. I conceive the great error in medical men, speaking with submission, has been the searching for specifics; the eager desire of obtaining a remedy to cure a disease which cannot be cured by any specific, whilst the symptoms of the disease have been very much neglected. I conceive that the difficulty of curing hydrophobia has arisen chiefly from that error in the profession; from professional men not studying the symptoms of the disease, but looking after specifics. In the earlier stages of hydrophobia, the disease cannot

be easily detected. It resembles some fevers; but after the symptoms of hydrophobia, that is, the dread of water and the extreme sensibility of the surface, present themselves, the disease is then easily recognized to be hydrophobia, and is then incurable.

I ask you whether, if a person was brought to you who had been bitten by a mad dog, after the usual operation of excision or caustic, you would think it advisable to prescribe any medicine?—Yes; if a patient was brought to me to whom caustic alone had been applied, I should think it necessary to give him medicines, and to apply blisters over the spine; if excision had been performed by a very skilful and careful operator, I should scarcely think it necessary to give him medicine. There is a great difference of opinion among the profession with regard to the effect of the virus being introduced into the system. My opinion is, that excision of the part, any time between the infliction of the bite and the first symptom of the disease would be equally efficacious as when the bitten part is taken out immediately after the bite; but I ought to say, that my opinion upon the disease is, perhaps, peculiar. I consider that it is very doubtful whether absorption ever takes place. My reason is this, that all morbid poisons, of whatsoever kind they may be, whether small pox, cow pox, syphilitic virus, plague, or any other morbid poison, when introduced into the system, produce their effects almost always within a limited time; hydrophobia does not. The period varies from a few hours to a considerable time: the proper inference to be drawn from that fact is, that the hydrophobic virus is not regulated by the usual laws of morbid poisons. On that account, I am inclined to believe that it remains in the part that is so bitten, and the individual is safe till the habit gets into a peculiar state, which we term, in medical language, predisposing; so that the part may be advantageously excised in the intervening time.

Can you suggest any legislative measure which could be adopted for the purpose of decreasing the disease of canine madness?—I think the most feasible measure is that which must occur to every person, I mean the confinement of dogs after the first appearance of hydrophobia in any district. I should say also, that much good would result from diminishing, very considerably, the number of the dogs belonging to the poor, by taxation, or some other measure.

Benjamin Travers, Esquire, called in, and examined.

Are you a surgeon?—Yes.

What length of hospital and general practice have you had?—

I have been fifteen years surgeon to St. Thomas's Hospital, and upwards of twenty years engaged in practice.

Have you met with instances in the course of your practice of hydrophobia?—I have.

Is it a frequent occurrence?—No, very rare.

Is it more frequent now than it used to be?—Not in my experience.

How many cases have you met with altogether?—I think ten, as far as my recollection serves me.

Is the disease so peculiar, and so well known by the information you obtain from the first symptoms till death, that a well-informed medical man can have no doubt of the nature of the complaint?—I should say, no medical observer, who has seen a single instance of it, could mistake the disease.

Some of the symptoms of hydrophobia exhibit themselves in other complaints?—Certainly.

Then non-medical persons would be apt to call that hydrophobia which might be a distinct complaint?—Yes, probably.

Could you mention any disease like hydrophobia?—*Tetanus* most resembles it; but the symptoms are so peculiar, that I much doubt if any intelligent observer, professional or other, could be deceived, who had seen one genuine case of hydrophobia.

But there have been medical men of eminence who have denied the existence of such a complaint as hydrophobia, and who have considered the cases of it on record as ill reported descriptions of some other disease?—I should say, such persons never saw a case of the disease; and further, that they were persons whose minds were disposed to scepticism.

Did not an instance occur lately of a death from hydrophobia in St. Thomas's Hospital?—It did.

How long ago?—At a guess, I should say six weeks; it might be two months.

Did you see that case?—Yes, I did.

Is that the only case you are aware of in this year?—The only case.

How many cases have come under your notice in that hospital altogether?—I should think in that hospital, and the adjoining hospital of Guy's, I may have seen five cases.

In twenty years?—Yes.

Are not those two the largest hospitals in London?—Together they are larger than any other single hospital, but St. Bartholomew's is larger than either of them.

Have you heard of any other instances occurring lately of hydrophobia?—I have heard, as we all have heard; but I have not met with any other well authenticated case.

Would you not have heard of it if any such had occurred in the London hospitals?—I have little doubt but that I should have heard of it, from the extreme rarity of the disease, and the great interest it excites in medical men.

What species of dog was that party bitten by?—I believe a terrier; but the previous history was not dictinctly made out. Many persons bitten have applied of late at the hospitals, because every person who has been bitten is now alarmed.

Have you any doubt that that was a case of hydrophobia?—Not the slightest.

Was any thing done for him as to cutting out the part, or any thing of that sort, before you saw him?—I believe not. Certainly not in the hospital; because the disease was then established. In a former case, I cut out the part after the symptoms of the disease had appeared. The man bore the operation with astonishing fortitude; but he fell back and died, as if from exhaustion, immediately on its completion. This man had been bitten three weeks before by a cat, and was brought to the hospital on the appearance of the symptoms.

Have you had instances of people coming to be cut and burnt as soon as bitten?—Many.

Have they considerably increased of late?—Decidedly. I will mention a fact to the Committee, to shew how the public mind is influenced by the prevailing reports. There is a girl now under my care in the hospital, who has been bitten in the leg by a dog, and she has been seriously ill in her general health, which was not at all disordered upon her admission. I find, upon inquiry, that her mind is distressed with the apprehension that she may become the subject of hydrophobia, although she is assured the dog is alive and well; and similar cases have occurred in which, before the patient's mind could be set at rest, it has been necessary to produce the dog to convince the patient that it was not mad. Mr. Hunter mentions a case of this kind. This girl, the sister of the ward informed me, has fallen into a low state of spirits from mental apprehension; her ill health certainly does not arise from the injury.

Do you consider that excision, when tried before the symptoms appear, is generally a perfectly efficient remedy?—I should say, the only remedy on which to depend, and generally efficient, not always.

What is the longest time in which you think it is possible for it to have a good effect?—There is reason to believe that it would be right to remove the part at any period before the appearance of the disease.

At what time would it be inefficient to cut out the part?—I think it would be inefficient upon the accession of spasms.

Do you think, between the bite and the symptoms shewing themselves, the probability is, there would be a beneficial effect produced by excision?—I think so.

Do you think that the virus is immediately taken into the circulation?—Certainly not.

Do you think it remains morbid in the part for any length of time till a disposition arises to receive it?—What we call a specific irritation is communicated by the saliva, and then the morbid poison is secreted.

Must that irritation arise first, in order to receive the virus into the circulation?—That irritation must exist in order to form the virus. The poison of hydrophobia is formed in consequence of a specific irritation set up by the saliva of the dog; the morbid poison is formed by the human system in consequence of the inoculation with the dog's saliva.

Do you think that the dog emits a certain portion of virus into the wound?—If by virus you mean saliva, I do.

Is it not that virus which creates the irritation? do you think that there is any new formation of virus that takes place; or is it the same virus transmitted from the dog?—I think there is a new and morbid secretion, in consequence of the specific irritation communicated by the saliva of the dog.

What time, in your experience, having seen so many patients, what is the general length of time, after the party has been bitten, up to the time that he is affected by hydrophobia?—I should say, varying from ten days to three months, as nearly as I can form an average.

Have you known many above three months?—No.

Have you heard of a case of twelve months: do you consider that as an authentic case?—I have heard of such a case, and which was generally regarded as well authenticated. If three months may elapse, I do not know why twelve months may not elapse.

Is that accounted for by medical men?—No; the subject of morbid poisons is altogether obscure; and this is a disease *sui generis*.

You have heard of cases occurring a very considerable time beyond three months, though you have not met with them?—Yes.

A case has been mentioned as being on record, of a father dying of hydrophobia, and taking leave of his children; and he kissed one of them, and that child took the disease of hydrophobia; do you not think that one of these circumstances must have been the case, either that the child itself must have been bitten, or that there must have been a sore upon the child's mouth; do

you think that the disease was communicated by the father to the child?—I should greatly doubt it. I do not mean to say that it is an absolutely incredible statement; but I should require, in order to satisfy my mind, the most full and particular evidence of the fact. I should find great difficulty in admitting, that the natural secretion of one person was capable of communicating the disease of another. The saliva is a natural secretion from the blood. I do not believe that the poison is transmissible from one human subject to another. Suppose a man affected with symptoms of hydrophobia were to bite another man, I should not expect he would communicate any disease.

Is not the whole subject of hydrophobia one exceedingly little understood by medical men?—Undoubtedly.

Does not that arise chiefly from the circumstance of its being so rare?—Certainly: it occurs so seldom, that it excites an over-eager curiosity, which interferes with the treatment: it is a case in which very little time is allowed for the trying of any remedy; and whenever any remedies have been fairly tried, they have been found inefficacious. The opportunities of becoming perfectly acquainted with the disease are extremely limited.

Do you think if rewards were offered by the Legislature, as in the case of other diseases, for the discovery of a remedy; do you think this is a case in which any good would be done by a measure of that kind?—I think not; the benevolent feelings of the profession require no incentive.

Can you, from experiments, state whether the virus of the rabid dog can be taken into the stomach of another dog, or a human individual, without affecting that individual?—Not from actual experiments; but I have heard the fact stated, and think it extremely probable, as it is conformable to what we know of other poisons, the viper's poison, for example.

Is there any thing that you would suggest to the Committee by way of legislative remedy for the prevention of this?—The especial result of all my observation of the disease is, that the excision should be performed thoroughly, and the earlier the better; but, at all events, it should be done at any period before the accession of the symptoms. If it is a case in which the knife cannot be so employed as entirely to include the bitten part, a strong caustic should be used, and, if possible, this should be rendered obligatory upon medical men in every case in which they conceive the slightest suspicion exists as to the state of the dog.

You have said, although cases of actual hydrophobia are very rare, yet you have known cases, and you have mentioned one particularly, of great alarm and depression of spirits, which had

arisen in consequence of the bite of a dog, from the apprehension of hydrophobia. Now, with reference to that part of the subject, do you not think it might be desirable to take precautions to prevent the multiplication of dogs, and consequently to the liability to this calamity from their bite?—I certainly think it would. My own belief, however, is, that a very large proportion of the dogs reported mad are not so.

From the effect produced on the public mind, and its great influence and mischievous effect upon persons who have been bitten by dogs, do you not think it would be desirable to take some measures to prevent, as far as possible, the liability to that calamity?—It strikes me, and this is my answer to the question, "Whether any legislative assistance could be given?" that the right way would be, to afford some additional facilities or encouragement to the study of the disease in dogs. If we were better acquainted with the pathology of the species, I think we might probably arrive at some means of exterminating the disease *in toto*.

In what manner do you think that could be best done?—I should say, by the institution of a society of competent medical men, for the express purpose of studying the character of the disease, so as to distinguish it from the distemper, and other diseases which have no injurious action beyond themselves. We might thus arrive at the most efficient treatment of it, especially if the same parties were authorized and directed to inspect and treat all cases of the malady occurring in public institutions, and to communicate their observations, at short intervals, to the profession at large.

CONFORMATION AND ACTION, AND THEIR CONNEXION.

By Mr. W. Percivall.

[Read at the Veterinary Medical Society, July 12, 1831.]

Vast error and misconception seem to have prevailed, not with the public alone, but even with our own "professors" and "teachers," in the estimation of that which constitutes the duty or province of the veterinarian: both these parties (one from ignorance, the other from a less excusable motive) have declared it to consist in the *medical* treatment of animals; whereas the general practitioner is no sooner launched into the world than he finds himself called on to exercise knowledge of a very different description from that which he has acquired in the

lectures he has been attending on the "anatomy, physiology, and pathology of the horse." One man brings a horse to him on account of the animal being lame or having a cold; but another consults him concerning a horse in perfect health, in regard to his "make and shape," or conformation, and his action: and the latter is no less in expectation of deriving the knowledge he requires than the former; although the veterinarian who is to answer his questions has been studying medicine alone, to the entire exclusion of a branch of science which, though no less requisite, has a very different origin. In fact, the present subject forms one of the grand and grievous gaps in the education of the veterinary pupil; and as it constitutes no part of his scientific education, so neither is he troubled with interrogatories thereon in his examination.

They have long "ordered these things better in France." Bourgelat (who may be looked upon as the John Hunter of veterinary science in France) wrote a work entitled "A Treatise on the Exterior Conformation of the Horse," which at the present day is still the standard work on the subject; and one, therefore, which it seems but right that we should look into before we proceed further, there being little or nothing that we can usefully refer to in our own language.

In order to arrive at a knowledge of perfect or faulty conformation, Bourgelat conceived it expedient to make a division of the whole animal body into *fore hand* or fore quarter, *hind hand* or hind quarter, and *body*, properly so called.

The fore hand comprised the *head*, the *neck*, the *withers*, the *breast*, the *shoulders*, and the *fore limbs*.

The body comprehended the *back*, the *loins*, the *sides*, the *belly*, the *flanks*, and the *sheath* or *udder*.

The hind hand comprised the *croup*, *haunches*, *thighs*.

In the Head

There were *three* things to be considered—its *volume*, its *length*, and its *position*.

In the Neck,

Also, are three considerations—its *length*, its *sortie* from the chest, and its *mane*.

In the Withers,

Their *height* and *conformation*.

In the Breast,

Its *breadth*.

IN THE FORE EXTREMITIES.

In the Shoulder,

Its *form* and *movements.*

IN THE HIND QUARTERS

He considers—

In the Croup,

Its *breadth.*

In the Tail,

Its *position*, its *dock*, its *carriage.*

In the Haunches,

Their *proportions.*

In the Thighs,

Their *conformation.*

In the Gaskins,

Their *length*, their *volume.*

In the Hocks,

Volume, form, strength, internal (from one another) *angle, substance.*

In the Cannon:

This, and the parts below it, should correspond to the body, and to the same or correspondent parts in the fore legs.

From this account of the beauties and defects of the different parts of the body, considered separately and individually, Bourgelat proceeds to speak of the *choice* or *selection of horses*; and he commences his instructions on this head with the following true and salutary observations:—

"In every existing and known kind of species of animals, there is no individual free from deformities more or less apparent, more or less essential, and in greater or less number. Science, therefore, in the selection of animals, as it regards their external conformation, consists in distinguishing the natural or accidental defects of importance, and which affect the utility of the animal, from those which are but trifling and not appear to be prejudicial to him."

The consideration of individual form and individual relative dimensions is naturally followed up by a view of the structure as a whole or one entire and inseparable piece, the harmony of whose proportions, their unity, on one side constitutes its *beauty*, while on the other it indicates its *serviceableness.* Beauty and utility seem to go hand in hand.

For instance,

IN THE ARM,

Are to be considered,

The *length, breadth, interspace* between them, *straightness.*

In the Elbow,

The *situation*, the development of the olecranon.

In the Knee,

Its *volume, form, effacement, interval* between them.

In the Cannon,

Its *thickness* or *diameter*, its *length.*

In the Sinew of the Leg,

Its *volume*, the *uniformity of its volume*, its *distance from the bone*, &c.

In the Fetlock,

Its *position*, its *volume*, &c.

In the Pastern,

Its *thickness*, its *length*, its *line of direction.*

In the Coronet,

Its *conformation*, its *condition.*

In the Foot,

Its *form*, its *volume*, its *consistence*, its *surface*, the *quarters*, the *heels*, the *sole*, the *frog.*

IN THE BODY

Are to be considered,

The Back,

And, in that, its *situation*, its *conformation.*

In the Loins,

Their *length.*

In the Sides,

Their *extent.*

In the Belly,

Its *volume*, its *form.*

In the Sheath,

The *volume of the testicles*, their *condition.*

In the Flanks,

Their *spread*, their *movements.*

In regard to beauty of form, Bourgelat very properly observes, that though there is nobody who does not assume to himself the right of judging of it, it is not every one who possess the power to do so. The decision must be founded upon a knowledge of certain established rules and demonstrations, whence are derived what have been denominated "the *laws* of beauty." What appears beautiful to one may not appear so to another; and what is really and truly (according to the laws of the science) beautiful, may, to an unscientific eye, appear quite the contrary.

Again, although beauty has its birth in proportion, it could not be argued that a person ignorant of proportion, was, *therefore*, no judge of beauty; for, in fact, proportion must have originally been determined upon from that which, by common consent, was regarded as beautiful.

The proportions assigned as perfect symmetry or beauty in the horse by Bourgelat are these: the *head* is fixed upon as the regulating scale for the admeasurement of all the other parts; to which end its entire length (from the summit of the poll to the lowermost border of the lips) is divided into three portions, denominated *primes;* each prime is subdivided into three equal parts, called *seconds;* and each second is parted into twenty-four divisions, named *points.* In any case, when the head itself appears to be the faulty or disproportionate part, Bourgelat instructs us to lay aside this artificial scale, and form another out of the height and length of the body, by dividing each of them into five equal parts; and taking two out of these to subdivide into primes, seconds, and points, the same as is done in ordinary cases with the head.

With a scale so constructed, Bourgelat thus proceeds:

1. *Three* geometrical lengths of the head give the proper *height* of the horse, measuring from his poll down to the ground he stands upon; that is, supposing the head to be in a proper position.

2. *Two heads and a half* give *the height of the body*, i. e. from the withers to the ground. Also, *the length of the body*, including both the fore and hind quarters.

3. *The entire length of the head* gives

The length of the neck, from the withers from the occiput.
The height of the shoulders, from the elbow to the withers.
The breadth of the shoulder, from side to side.

4. The *measure from the summit* of the head *to the angle of the lips* will give,

The length of the croup, taken from the anterior spine of the ileum to the tuberosity of the ischium.
The breadth of the croup or *haunches*, or extent between the inferior spines of the ilea.
The height of the croup, from the point of the stifle to the summit of the croup, the limb being at rest.
The lateral length of the hind legs, measuring from the point of the stifle to the protuberant part of the side of the gaskin, thence in a straight line to the projecting side of the hock.
The height of the hock from the ground, measured from the point referred to above.

The distance from the summit of the withers, to the insertion of the neck into the chest.

5. Twice the last measure (viz. that from the summit of the head to the angle of the mouth) gives, pretty nearly,

The measure from the point of the withers to that of the stifle.

The measure from the point of the elbow to the summit of the croup, or the posterior spines of the ilea.

6. *Thrice this measure, plus* half the breadth of the pastern (the two measures together being equivalent to two heads and a half) will give,

The height of the body, from the summit of the withers to the ground.

Its length, including fore and hind quarters.

7. *This same measure, plus the entire breadth of the pastern,* will shew the whole length of the body.

8. Two-thirds of the length of the head are equivalent

To the breadth of the chest, including the arms.

To the horizontal dimensions of the croup.

The third of the length of the hind quarter and body taken together, as far forward as the *uplimb* of the withers, touching at the elbow.

The anterior length of the hind leg, taken from the tuberosity of the tibia to the angle of the gaskin.

9. *One half the entire length of the head* is the same as

The horizontal line between the point of the arm and the perpendicular let fall from the withers, touching at the elbow.

The breadth of the neck, at its junction with the head.

10. *One-third the entire length of the head* will give

The height of its superior parts, measuring from the summit to a line running through the most projecting points in both orbits.

The breadth of the head, measured beneath the lower eyelids.

The lateral breadth of the fore-arm, taken from its anterior origin to the point of the elbow.

11. *Two-thirds of the above lateral breadth* gives

The vertical elevation from the point of the elbow down to a line on a level with the lowest part of the sternum.

The sinking of the back, in relation to the height of the withers.

The lateral breadth of the hind limbs, about the gaskins.

The interval between the fore-arms.

12. One-half of the third of the entire length of the head gives

The thickness of the arm.

The breadth of the fore coronet.

The breadth of the hind coronet.

The breadth of the hind fetlock, from before to behind.
The breadth of the knee, in front.
The thickness of the gaskins.

13. One quarter of this same third (of the entire length of the head) gives the thickness of the fore cannon.

14. One-third of the same measurement gives
The thickness (from side to side) of the hind pastern.
The thickness of the arm, near the knee.

15. The distance from the elbow to the bend of the knee, is the same as
The distance from the same bend to the ground.
The distance from the stifle to the bend of the hock.
Also from the bend of the hock to the coronet.

16. The sixth part of this last measure gives
The lateral breadth of the fore cannon.
The lateral breadth of the fore fetlock.

17. *The third of this measure* is about equal to
The breadth of the hock, from its bend to its point.

18. *One quarter of the measure* gives
The lateral breadth of the knee. Also *its length.*

19. *The measure of the interval between the angles of the eyes*, is equal to
The lateral breadth of the thigh, taken opposite to the tuberosity of the tibia.

20. *One half of the same interval* gives
The lateral breadth of the hind cannon.
The breadth of the fore fetlock, from its anterior summit through to the point in the heel.
Lastly, The difference in the height of the croup, compared with the summit of the withers.

Sainbel, who, in what relates to this subject, may be looked upon as the disciple or follower of Bourgelat, measured and proportioned after the same manner, and upon the same scale, the celebrated racer Eclipse; and it may be worth our while to inquire in what particulars these relative dimensions of real nature differ from those scientific deductions constituting the standard of perfection of Bourgelat. "This difference," to use the words of Sainbel himself, "which proceeds from the peculiar conformation of each, contradicts, in some particulars, the table of geometrical proportions in the use of the veterinary schools of France. It proves, that *no common measure can be made to apply equally to every species, since Nature has even diversified the forms which compose it.*"

"If each species" (continues Sainbel) "has its own style of beauty; if even each individual has its own peculiar beauty;

if it is not possible to find two horses that perfectly resemble each other; we cannot pretend to assign any one form preferably to another as the rule of beauty for the horse. Any scale of beauty, or rather *proportion*, can only be formed upon that mechanical construction of the animal, from which result the possibility and extent of those motions by means of which he is enabled to transport himself from one place to another with greater or less speed."

Sainbel regarded the frame of Eclipse, as "almost perfect." Yet it was found to differ from the French standard in the following important respects: viz.

Instead of the standard "three heads," Eclipse measured three and a half heads, from the foretop to the ground.

Eclipse's neck measured half as long again as that of the standard.

The *height* of the body (the standard informs us) should be equal to its length; that of Eclipse exceeded the length by one-tenth.

The toe should maintain a perpendicular line with the stifle: the toe of Eclipse stood half a head behind this line.

The distance from the elbow to the knee greatly exceeded the measure from the elbow to the ground: whereas, in the standard these measurements are co-equal.

In viewing these differences, however, proper allowance ought to be made for the circumstances attending their formation. It must be remembered that Eclipse was a *race*-horse—and a racer too of the purest blood, he having descended, originally, from Arabian stock: whereas, France not being a country productive of such a breed, the French standard must be regarded as applicable rather to the hack or hunter, or even the cart-horse.

On the subject of the outline, volume, and proportions of different parts of an animal body (which, together, may be said to constitute the science of "Exterior Conformation"), I would observe, that it is a study which, unless properly based and qualified, may lead us into serious error and misconception. As well, in my opinion, might a person argue of the excellence of a chronometer from its superficial aspect as pretend to determine absolute speed or strength from exterior conformation *alone*. Unless a knowledge of the *interior* be combined with that of the exterior—unless texture, organization, and nerve be taken into the account, little benefit can result from such superficial examinations. Sainbel seems conscious of this, when he writes "There can be no doubt but that of two horses of the same size, the one may be speedier than the other *because the texture of the organs may be compact and close in the one, and weak and*

relaxed in the other: but this exception cannot affect the general rules laid down concerning exterior conformation." When it is considered how much the race-horse differs in his outline, volume, and proportions from the cart-horse—when we reflect upon the difference in their individual textures, organizations, and nervous influence—and when we add to this the known difference between them in speed and strength—it must appear evident enough, that one scale will not serve for two animals, though of the same species, so dissimilar to each other: at least, we ought to be furnished with one scale of proportions for the race-horse and one for the cart-horse.

There can be no doubt that one definite length, and breadth, and volume, is required for every individual member; and that no great deviation from this can take place without disparagement and consequent impairment to the whole: but, then, so much depends upon a variety of concomitant and dependent circumstances—such as the adaptation and proportion of other parts, and the internal texture, organization, and susceptibility of the whole—that it seems very unnatural, and is perhaps impossible, to lay down any precise and immutable laws. In confirmation of this, how often does it happen that we are astonished at the excellent performances of some *mis*-shapen horse, and equally surprised and disappointed at the inability of another, whose pretensions, according to the laws of beauty or proportion, are of the very first order!

Still, that proportion has to do with power, and strength, and action—and much to do with them, I admit: but then it must be taken in a *relative* sense, and as depending upon more than meets the eye; and, therefore, cannot well be subjected to any precise rule and measure. Among its relations stands first and foremost POSITION; of which indeed such is the importance, that I would almost say it lays claim to equivalent consideration. Of what value is the most beautifully proportioned limb, to the eye even, much less in point of utility, whose different parts are set in awkward or unnatural positions? The head may be its proper length and breadth, and so likewise may be the neck: but of what avail is all this, unless the two be properly or advantageously conjoined? Position intrudes upon us while we are measuring the limb; and in despite of every consideration we can give it, after all, turns out such a wayward and intractable thing to deal with, that we cannot anywise fashion it into our scale of dimensions.

The impracticability of reducing this science to any definite rule or law, has placed it among that species of knowledge which a man gains by dint of observation alone: hence it is that

the best "practical judges" of "shape and make" are to be sought after rather among horse-dealers, and persons connected with the turf, than among those who pretend to make a science of it; for the one will, at a single glance, point out a well-shaped horse; while the inexperienced other will not, with all his "proportions" at his tongue's end, be able to judge half so correctly or half so speedily. For all this, however, it must be admitted that, even in such an indefinite form, all geometric rule ought by no means to be disregarded. For my own part, I should certainly say, that the unerring practical eye would be assisted by such a knowledge; and that the tyro, beginning with it, would have decided advantage over any other competitor in the field. My reasons for bringing the works of Bourgelat and Sainbel forward in this place, have been, to glean such knowledge from them, as I conceived could be made practically useful: at the same time I wish it to be understood that, in my humble opinion, these authors have placed more weight and importance in their "scales of proportions" than they seem to be deserving of; and have, in attending so much to their geometrical admeasurement, neglected, or at least disregarded, that necessary and indispensable concomitant of "proportion," *position;* by which, of course, I mean *relative* position.

Proportion and position are, however, far from being the only considerations with one who is about to estimate the capabilities of an animal body: we must look to *materiel* or texture, to organization, and to nervous influence; which three relations seem comprehended, in the vulgar sense, under the head of breed or race. For instance, when we say that horses require to be well-bred, in order to combine speed and bottom with strength, we mean that the texture of their bodies should be of a finer and superior description to that of others; that their organization should be correspondently better wrought; and that their nervous or vital influence should be of a higher caste. These constitute the corporeal differences between the race-horse and the cart-horse—between an animal of breeding and one of no breeding. It is a curious but well-ascertained fact, that portions taken from any correspondent bones in the bodies of these respective animals, are, with all their difference in magnitude, of nearly equivalent weights: proving that one contains as much *materiel* as the other; the difference being, that in the one it is more densely and better wrought together, and consequently better adapted for the purpose of quick motion, while it still possesses unrivalled strength and resistance. So it is with muscle; so with every other texture.

The *organization* of such an animal—the system whereby

every part is furnished with nutriment—is of a correspondently more perfect description. And the nervous texture—that which vitalizes every part, and infuses the spirit of exertion into it—is such as to endow it with more life and spirit, or life and spirit of a super-excellent kind.

[To be continued.]

ON THE BLAIN, OR VESICULAR SWELLING UNDER THE TONGUE IN HORSES, CATTLE, AND DOGS.

By Mr. W. YOUATT.

[Read at the Veterinary Medical Society, January 26, 1831.]

THERE is a vesicular enlargement on the lateral and under part of the tongue in horses, oxen, and dogs, which, although not of unfrequent occurrence, and peculiarly fatal in cattle, has not been sufficiently noticed by veterinary authors. By writers on cattle medicine it is recognised under the title of *the Blain.* In the horse and the dog it is often unaccompanied by previous indisposition, or by any other disease. The animal refuses his food; there is a copious discharge of saliva, at first, limpid and without smell, but soon becoming purulent, bloody, and exceedingly fœtid. On examination the tongue is found apparently enlarged; it is elevated from its bed between the maxillary bones; and on the side and towards the base of it are seen large vesicles, pellucid, red, livid, or purple; and if the discharge be fœtid, having near their bases, ulcers irregular, unhealthy, or gangrenous.

In the horse and the dog the progress of the disease is slow; it seldom extends beyond the sides of the tongue: the vesicles are not of such magnitude as to interfere with respiration, and the ulcers are neither many nor foul. In cattle it is sadly different. The bladders attain an enormous size, they quickly break, and form deep ulcerations, and are immediately succeeded by other vesicles still larger. The whole membrane of the mouth becomes affected: the inflammation and swelling extend to the cellular substance of the neighbouring parts, and the head and neck are considerably, and sometimes enormously, enlarged. The respiratory passages are obstructed; the animal breathes with the greatest difficulty, and is, in some cases, literally suffocated. The course of the disease is likewise in cattle strangely rapid. The beast occasionally dies in twenty-four hours from the first attack. At other times fever rapidly succeeds, of a typhoid or malignant form.

The primary seat of the disease is the cellular substance beneath the integument of the part. As the sublingual glands lie along the under part of the tongue, and their ducts open on the side of the frænum, it is possible that this disease may proceed from, or be connected with, obstruction or inflammation of these ducts. Dissection, however, has not proved this; and the seat of disease, when the swellings are first discovered, is the cellular tissue between the integument and the lateral parts of the tongue chiefly, and between the membrane of the mouth and the sublingual glands partly: in cattle, however, the inflammation soon spreads to all the neighbouring parts.

Post-mortem examination shews intense inflammation or even gangrene in this situation, and also of the œsophagus, the rumen, and the fourth stomach. The food in the rumen has a most offensive smell, and that in the maniplus is hard and dry. The small intestines are highly inflamed, with red and black patches in the cæcum, colon, and rectum.

Of the cause of this disease I cannot speak with confidence: it *may* arise from, or be connected with inflammation or obstruction in the ducts of the sublingual glands; but I suspect that, in the great majority of cases, it has another, although at present unknown origin.

It does not appear to depend on the food, for the stall-fed cows of the metropolis are as subject to it as the grazing cattle of the country.

There is no disease of which it is the necessary or general companion. I have seen it in tetanus in the horse, and have oftener observed it in severe catarrh, but still oftener there has been no other recognizable malady. In the dog I could never trace it as the sequela, or concomitant of another disease. In cattle it either ceases before the constitution is much affected, if proper means have been taken, or it is succeeded by or degenerates into typhus.

It is more frequent in spring and autumn than at other seasons of the year: these are seasons when the animal is debilitated by the process of moulting, and more than usually disposed to inflammatory complaints.

It is generally epidemic, Many cases occur about the same time in certain districts, or over a great extent of country. When it appears in the town dairies, the country ones are rarely exempt from it.

It is contagious in cattle, and most ruinously so when it assumes the malignant character. The farmer and the dairyman cannot have this too deeply impressed upon their minds. There must, however, be actual contact; the beasts must eat

from the same manger, or drink from the same trough, or be in that situation that the saliva shall be received on some abraded or mucous surface. This can be too readily effected when they graze in the same pasture. The disease is contagious as it regards the human being. Athough I do not believe all the stories that are told of the herdsmen that have attended on cattle suffering under the blain, being afflicted with a similar disorder, yet there is one account that can scarcely be disputed; it is of a man who had held down the tongue of an ox with a silver spoon, in order to examine the mouth, which had many of these vesicles. He afterwards, and without any great care about cleaning it, ate some broth with it. Not many days had elapsed when his mouth felt fore; pustules appeared on the side of the tongue; malignant fever succeeded, and he died.

I am not prepared to say that is contagious in the horse or the dog. I have not seen any instance of it. It is not so virulent in these animals as it is in cattle.

The treatment of these swellings under the tongue will be readily anticipated, and is plain enough. As it is a local disease, the first and most important means employed will be of a local nature. *The vesicles should be freely lanced from end to end.* There will not be much immediate discharge. The bladder will be found to have been distended by a substance imperfectly organised, or of such a glairy or inspissated nature as not readily to escape; but it will very soon disappear, and in four-and-twenty hours, in the majority of cases, the only vestige of the disease will be an incision, not perhaps looking very healthy at first, but that will soon become so, and heal. If there have been any previous ulcerations, or the slightest fœtor, the mouth should be frequently washed with a diluted solution of the chloride of lime (one part of the saturated solution, and eleven of water). This will act as a powerful disinfectant, and likewise a useful stimulant to the foul and indolent ulcer. When all unpleasant smell is removed, the mouth should be bathed with a lotion composed of equal parts of tincture of myrrh and water, or half an ounce of alum dissolved in a quart of water, and two ounces of the tincture of catechu added. I do not recollect a case in the horse or the dog in which more than this was required; and in cattle, before there has been much fœtor attending the discharge, or the constitution has been materially affected, these simple means will perfectly succeed.

Mr. Parkinson* goes on the same principle of rupturing or destroying the bladders, when he recommends the following strange method of cure: "Provide a cane or stick that will bend, long

* Treatise and Management of Live Stock, vol. i, p. 234.

enough to reach into the great bag or stomach of the animal; then take a piece of soft woollen cloth or linen, but flannel is the best; put into it some tow, soft hay, cotton or wool, to the size of an egg or a little larger, and tie it on the end of the stick. This done, dip it in tar, and open the mouth of the animal: with one hand take hold of the tongue, while with the other hand you gently thrust the stick with the tar upon it down the throat into the stomach. There let it remain for about half a minute, for the tar to dissolve and disperse: then draw it very gently up, the slower the better, as wind will follow, which in some cases gives great ease. Repeat this three times, and the animal will be immediately relieved." He adds, in the next page, "The immediate efficacy of the medicine, I apprehend, arises from thrusting the stick or cane down the throat, which breaks the bladders, and it is for that reason I prefer flannel to linen, as more likely, in passing the root of the tongue, to have that effect." Of his account of the tar, however, the reader must form what opinion he pleases: "while the tar being nauseous, causes the animal to throw up a large quantity of thick saliva, coughing and sneezing violently, and in consequence to break wind behind."

It will be prudent, however, to give a purging drink to the ox (not, perhaps, the purgative of Mr. Parkinson, a pound of salt well shaken in a quart of chamber-lie), and to administer some slight aperient to the horse or the dog.

If the practitioner is consulted, somewhat too late in the day, when the constitution has become affected and typhoid fever has ensued, he will still lance the tumours, and apply the chloride of lime and the tincture of myrrh, and give a gentle aperient. He will endeavour to rouse and support the system by tonic medicines, as gentian and calumbo with ginger, adding to two drachms of the two first, and one drachm of the last, half an ounce of nitre; but he will place more dependence on nourishing food. Until the mouth gets tolerably sound, the animal cannot be induced to eat; but it will occasionally sip a little fluid, and therefore gruel should be always within its reach. More should be given with the horn, as thick as it will flow; but a better instrument here is the stomach-pump, introduced not too far down the throat, and by which any desirable quantity may be readily conveyed to the true stomach without entering the rumen, if it be not forced down too violently, so as to break through the floor of the œsophagean canal.

ARMY VETERINARY DEPARTMENT.

[Continued from Vol. iii, p. 581.]

Before I proceed with my investigations into this subject, I must solicit the patience of my reader, while I pause to congratulate, not so much myself, as the cause I am advocating, on the accession of such an able fellow-labourer as "Another Army Veterinarian." Would that many such could be found to ply the oars with us; our cause, then (so meritorious in itself), might be rendered doubly worthy of attention from the number and strength of its supporters. For my own part, I hail this friendly luminary as a companion on my road: he has cheered me to proceed, and, with the renewed vigour I have derived, permit me now to do so.

In my two former communications I have, in one place or another, harped a good deal on the *importance* and *respectability* of the veterinary profession; in particular that portion of it whose services are devoted to the army. To such as have no other knowledge of the veterinary art and its followers than they happen to catch from its practice in some blacksmith's shop in the country, these terms may appear to be, in this place, strangely perverted, or altogether misapplied: it is very natural for such persons to inquire what "respectability" or even "importance" can possibly attach to a low dirty shop of such a nature; or how can those who are in anywise allied to such a low calling have any thing to do with such terms.

To put an end to all such notions (which, by the by, at the present day, are not very likely to have origin or existence in the mind of any person whose opinion is of consequence to us), I imagine it will be allowed, that an art that can be demonstrated to be highly and universally useful to society is *important;* and that, should that art be such as can only be attained by the study of a highly cultivated and intricate science, it demands men of *liberal* education, of *respectability*, for its professors. The veterinary art will not be found to be deficient in either of these relations; either as concerns its usefulness to mankind, or its demands upon science: in a word, in both respects it occupies the next place to *human medicine* itself; and further than this, there cannot be the least necessity for one word more on the subject of "importance and respectability."

My last letter gave an account of the *way* in which veterinary appointments in the army were obtained at the present day. I said that, for any person to procure a commission, it was necessary that his name should stand upon the *list* kept by the secretary to

the commander in chief; and I at the same time gave him to understand, that this list was fed from another list kept by Mr. Coleman, but by no means *regularly* fed by the transmission of the names of those who, having obtained their certificates, were anxious to obtain an army appointment, and to whom no exception could be made, but by the insertion of those alone whom Mr. Coleman chose to select or favour. Not but that an individual *may*, providing he has *good friends*, obtain an appointment *without* any interference or participation whatever of Professor Coleman: nay, I have known the thing to be accomplished in *direct opposition* to the Professor,—a circumstance I mentioned for the purpose of shewing that the *Principal* veterinary surgeon has not, even at this advanced stage of his military career, succeeded in obtaining the *exclusive* right of nominating candidates for the army.

It may not prove a valueless piece of information to one who is solicitous of an army appointment, to be apprised, that there are no less than *four* quarters in which he may try his interest or influence with hopes of success; and that *two* of them are entirely unconnected with the College, and the others paramount to every authority or recommendation whatever that can proceed from it. The two sources of interest, unconnected with Mr. Coleman's interposition, are, the *colonel* and the *lieutenant-colonel* of the regiment in which the vacancy is likely to fall. The recommendation of either of them will weigh more or less at the Horse Guards; that of both of them combined, in course, a great deal more. But, if (and at the same time) interest can be made with the commander-in-chief, or even with his secretary, the appointment may, with all reasonable certainty, be reckoned upon to the exclusion of all veterinary interference; the production of the candidate's "diploma" being all that is required at the Horse Guards, in a professional point of view.

And, were the diploma (such as it ought to be, and without it be which, it is a non-entity) a guarantee for the qualification of the applicant, no other attestation of professional abilities would or could ever be sought after: for what teacher, or lecturer, or professor, I should like to know, can, either in reason or conscience, pronounce that man to be professionally *unfit* for a situation, who, the same Professor has already informed the world, upon *parchment* too, is "qualified to practise the veterinary art in all its branches"? After *such* a declaration, there is something ridiculous in the same Professor pretending to give a *second* notice of qualification, and altogether absurd, and unjust, and contradictory, in his notifying the *contrary*. Such acts as

these only tend to hasten the arrival of that day which is fast approaching, when the Horse Guards will see the necessity of *reform* and amendment in the *veterinary* department of the army.

Rank and Pay.

I have already said much on the first of these subjects: it is my intention, on that account, to confine my present remarks chiefly to the latter of them. In commencement, I would fain take a view of the new regulations (which have just made their appearance) in the army *medical* department.

Although the appointment and the duties of a veterinary surgeon are entirely distinct from those of the surgeon of the regiment, still both stand upon the "staff" of the regiment, and each has a sort of relationship to the other, inasmuch as they certainly, both of them, are "*medical* officers:" further than this I would not carry any sort of comparison between them in regard to their respective offices; but I cannot resist this opportunity of shewing how very differently they are dealt with in respect to their rank, and in particular to their pay.

By a recent "warrant regulating the appointment and pay of army medical officers, dated July 29th, 1830," the annexed regulations have, by his Majesty's command, been approved and determined on:—

1. The medical officers of the army are, in future, to be distinguished by the following ranks and commissions: viz.

Assistant Surgeon,
Regimental Surgeon,
Staff Surgeon,
Assistant Inspector of Hospitals,
Deputy Inspector-General of Hospitals,
Inspector-General of Hospitals.

2. No medical candidate who has not passed his examinations at the Royal College of Surgeons of London, Edinburgh, or Dublin, shall be eligible for this commission; and the assistant surgeon must have served on full pay five years before he shall be eligible for promotion to the rank of regimental surgeon, and seven years before he shall be eligible for the rank of staff surgeon.

3. *Regimental surgeons* and *staff surgeons* must have served ten years in the army, on full pay, before they shall be eligible for the next step of rank.

4. An assistant inspector of hospitals must have served three years at *home* or two years *abroad*, in this rank, before he shall be eligible for promotion.

5. A deputy inspector-general of hospitals must have served five years at *home* or three years *abroad,* in this rank, before he shall be eligible to the highest rank of inspector-general.

6. The rates of daily pay for the before-mentioned ranks are to be, in future, regulated by the length of time which the officers of each class shall have served upon full pay, according to the annexed scale.

RANKS.	RATES OF DAILY PAY.			
	Under 10 years actual Service.	After 10 years actual Service.	After 20 years actual Service.	After 25 years actual Service.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Assistant Surgeon - - - -	0 7 6	0 10 0	0 10 0	0 10 0
Regimental Surgeon - - - -	0 13 0	0 15 0	0 19 0	1 2 0
Staff Surgeon - - - - - - -	0 14 0	0 16 0	1 0 0	1 3 0
Assistant Inspector of Hospitals		0 19 0	1 2 0	1 4 0
Deputy Inspector Gen. of ditto		1 4 0	1 8 0	1 10 0
Inspector General of ditto - -		1 16 0	1 18 0	2 0 0

With the above scale let us compare the one by which the pay of the veterinary surgeon is regulated.

	Under 3 years.	After 3 years.	After 10 years.	After 20 years.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Veterinary Surgeon - - - -	0 8 0	0 10 0	0 12 0	0 15 0

From which comparison we find that the veterinary surgeon commences his service with 8s. per diem, the assistant with 7s. 6d.; and in *three* years attains the same increase for which the other has to serve *ten:* but, alas! flattering as this appears, the prospect henceforth is sadly, sadly lowering and cheerless: ten long years he has to serve before he can claim the same rank with which the assistant surgeon *commences* his career, and before he can obtain 12s. per diem; a period at which his cotemporary, the assistant surgeon, has, most probably, become promoted to the rank of surgeon, and in the receipt of 15s. per diem. Farther on, as will be seen by contrasting the two tables afore-described, the poor Vet. is left still further behind his more fortunate compeer; and so the rates of their respective pays, proportionate to their servitudes, will be found to diverge until there is no longer any sort of comparison between them —until, in fact, it becomes manifest to any one at all acquainted with military matters, that the veterinary surgeon is the *worst remunerated officer in his Majesty's service.*

AN ARMY VETERINARIAN.

ON CASTRATION BY THE CLAMS.

By Mr. J. C. Ralston, *V. S. Madras Cavalry.*

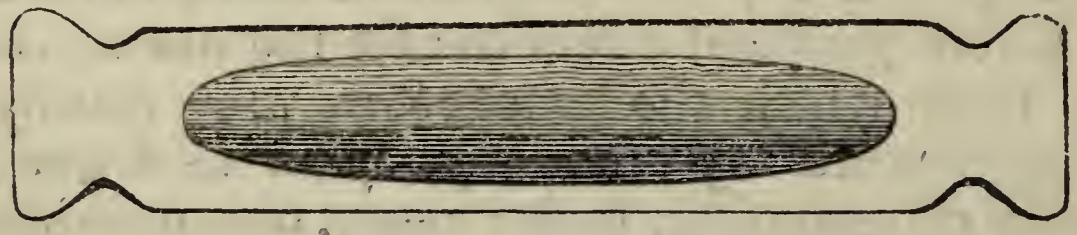
To the Editors of "The Veterinarian."

When I addressed to you, gentlemen, the communication which appeared in The Veterinarian for January, I expressed myself desirous not to *avow* myself a contributor to that useful work, until I had conceived myself to have communicated on some subjects sufficiently useful to encourage me to desire that honour; but I find you have already *set* me down on your *list. N'importe:* I must now only endeavour to fulfil, avowedly, what I had intended to essay anonymously. Your printer has, however, fallen into an error which I must request you to correct; for though I may presume, on some future occasion, to speak of the *department,* in reference to veterinary surgeons in the Company's service in India, it would be somewhat more than presumptuous to speak of the *deportment,* which is the word your printer has substituted for the other in my last communication.

In my present communication, I do not imagine I am addressing you on a subject in any way original or new; but I am induced to submit a few practical directions for the use of the *clams,* in castrating, from which the practice may be readily followed; and to bring forward my testimony, as far as it goes, in favour of that mode of operating, under many circumstances. In this country the usual mode is sufficiently successful, in general, because horses are castrated, mostly, so young; but in the adult and older horse, I should ever infinitely prefer to operate by the *clams.* Why? Because in the older animal the vessels are enlarged, and more difficult to securely seal by the heated iron; and because I think the tendency to constitutional irritation less, and the liability to inflammation extending to the peritoneum not so great as when the latter mode is adopted. I shall not, to convince, attempt reasoning on this point; but content myself with simply stating a well-known fact—that, in the common operation, old horses have frequently been lost, and that the result of it is always, with them, viewed, in a degree, as hazardous; while, in India, I have castrated a great many horses from four years of age upwards, and never lost a horse, or had an unfavourable symptom: and I have known a very great many operated on by others, and have no recollection of, at any time, hearing of a fatal, or even an untoward result. In India, as I apprehend is generally known, the horses in the regiments of cavalry are invariably stallions, save such as have been castrated for some par-

ticular cause. The most frequent is vice. I will now proceed to detail the mode of operating, at as little length as possible; leaving to those who may be led to give it a trial, to come to their own conclusions.

I will first describe the apparatus, which is very simple. Get a circular piece of any strong tough wood, not liable to split or fracture; about four-and-a-half inches in length and between three quarters and one inch in diameter. Cut this fairly in two halves, lengthways; having first, however, cut a notch deep enough to receive two turns of whipcord around either end, about half an inch from it. Do not notch so deep as to leave a neck insufficiently strong. To lighten the *clams*, they may be plained, or scraped with a piece of glass, on the back or convex side, till each half is about a third less deep than wide. In the plane side or face of each half, an inch from the neck and one-fifth from the sides, form a groove or hollow. At its central or deepest part the groove is two-thirds the depth of the wood. And now the *clam* is ready for the caustic. This is an elaborate description of so simple an implement; but I am desirous that any one may perfectly comprehend. Here is a rough sketch of one of the halves of a *clam*.



The caustic I have always used is not a powerful one—on the contrary; for I have heard and read of experiments and operations with the stronger caustics where sloughing, hæmorrhage, peritoneal inflammation, and other results, which have been fatal, have followed. Take of blue-stone, alum, and pipe-clay, in fine powder, equal parts; mix, and form them into a stiffish paste with fat, and fill up the grooves in the *clams* with it, even and smooth. Let it stand to dry; or rather, always have clams some time prepared. A piece of strong, not too thick, whipcord, cast double and looped over the notch, at each end of the *clam*, forms the fastening. The tongs for compressing the *clam*, when on the cord, preparatory to tying, are eight or nine inches long in the handles, and five or six in the blades. In either blade, about an inch from its end, is a notch to grip the *clam* in, and prevent its slipping when the pressure is applied. When about to operate, spare *clams* and pieces of whipcord should always be at hand, as the neck of a *clam* may fracture, or the whipcord break, and neglect of the precaution prove embarrassing.

To operate, the horse having been duly *prepared*, as, of course, presumed, is thrown in the usual way, and on his near side. Prop him somewhat on his back with a truss; carry his off-hind leg well forward on his shoulder, and secure it; and, plenty of water being at hand, let an assistant draw out the penis, and sponge it, the sheath, and around the scrotum. I would ever do so; for, even in a surgical point of view, the cleanliness cannot be undesirable. Having your *clams* ready, one end firmly tied, the other open, hand them to your assistant, with the other pieces of whipcord, your knife or scalpel, tongs, and a pair of narrow-bladed scissars. Place yourself at the horse's croup, leaning over his quarter, and, taking the near or under testicle in your hand, dissect through its coverings, as usual. When the testicle springs out, put your knife aside, and, grasping it in your right hand, pull gently on the cord, while you clear the latter with your left, sufficiently high up to put the *clam* on. You pass the open end of the *clam* on the cord, from before backwards, and your assistant grasps it with the tongs, and gradually compresses it with them, till, with one of the loops of whipcord you have tied it, and sufficiently tight. Proceed similarly with the other testicle; and, having examined that none of the coverings of either have been included in the gripe of the *clams*, about half an inch from their lower edge cut the testicles off. Wash the parts well with plenty of water; then, letting the animal up, order him to be walked for half an hour quietly; the same in the evening; and that during the day water be frequently gently dashed on the parts, and the flies kept from fretting him. On the following day throw him (or better without throwing him), and, cutting through the whipcord fastening one end of either clam, remove them; retaining hold of the end of the cord till you sponge it clean, and clip off a piece a line or so higher than where the lower edge of the *clams* griped. The rest of the dead part is left to slough, the cord being now let go, and the scrotum pulled smoothly over it. Walk the horse, and treat otherwise as on the previous day; and afterwards leave to Nature, and the horse will very soon be well, under ordinary treatment as regards diet, &c.

Seatland, 18th Jan. 1831.

THE HISTORY AND ORIGINAL CONSTITUTION OF THE VETERINARY COLLEGE.

We extract from a little book that is now out of print, and not to be obtained, a history of the establishment of the Veterinary College, at St. Pancras. The account comprises the two first years of the existence of that institution. The record will be interesting to every veterinary practitioner, and to every proprietor of horses or cattle. We shall give it without a comment.

An Account of the Veterinary College, from its Institution in 1791. London, 1793.

The ardour for improving arts and perfecting science in this country has given rise to many excellent institutions, by means of which the interests of mankind at large have been eminently served, and the sphere of human knowledge almost incredibly extended.

In adverting to these establishments, we may discern the efficacy of opulence and patriotism united for the public good; and we may, at the same time, form a very just ground of confidence, that the same faculties will still continue to be exerted for the support of other plans, tending to promote the same beneficial end.

Whatever may have been done to increase the public stock of knowledge in other departments, the veterinary science hath been hitherto little cultivated in this country; nevertheless, if its claims to public favour were fully stated, there could be no doubt but that our national spirit and benevolence would patronize it equally with every other branch of natural knowledge. To define this science, will be sufficient to recommend it in the most effectual manner.

The veterinary science, then, is the art of preserving the health of cattle, and particularly of horses, and of curing their diseases; and comprehends a full and just knowledge of those several animals; of their anatomy, physiology, and pathology; a knowledge of the general laws of the animal economy, and of the particular ones of each distinct species; a knowledge of the animal structure, and its relation to exterior matter, alimentary, medicinal, and noxious.

Many able and ingenious persons, within these kingdoms, have appeared to concur in the utility of this science; and wishes have been expressed that means were provided for the cultivation of veterinary knowledge; which, for want of such

means, hath remained unimproved; but, notwithstanding the frequent complaints, which are justified by the losses sustained, the treatment of our cattle, of so much importance to the prosperity of our country, hath been universally restricted to those who are the most remarkably unqualified to undertake the charge. That the shoer of a horse should, by virtue of his trade, become equal to a task which, in order to its being perfectly performed, would require the skill of an Harvey and a Boerhaave, appears a paradox which could have gained credit only in an age of general ignorance and barbarism; when, indeed, medicine had to encounter enemies not much less formidable than those which have obstructed the advancement of the veterinary art. It does, however, no where appear, that absurdity ever rose to such a height as to consider the care of the human health as the proper office of the shoemaker. There was a time, indeed, when much was confided to the barber; and at that period medicine was nearly in the same state in which we see the veterinary art at this day.

The incompetency of the persons to whom it has been abandoned has drawn contempt upon the art itself; and few have ventured to concern themselves with a profession that seemed incapable of conferring any honour upon those who exercised it. But the benefits of medicine to man, in the state in which it exists at this day, and in this country, are evident to every ingenuous mind. To extend those benefits to those parts of the animal creation that are destined for the use of mankind, is the object of veterinary medicine; and as the sphere of human medicine is of large extent, and embraces much more than the art of healing alone, so does that of veterinary medicine likewise comprise many important parts of natural history, and the fundamental principles of natural philosophy: "Sicut animalia post hominem, ita ars veterinaria post medicinam secunda est."

The laws of the animal economy of our cattle are as various and as intricate as those of our own; and if to preserve them alive, and in the most thriving state, be one of our first concerns, we ought, in consistency, to proceed towards that object by a path capable of conducting us to it. And here it may be observed, that the arts of surgery and of human medicine alone can render very little service in cases of veterinary practice; while, on the other hand, they may be, and frequently are, the sources of error. The materia medica, an instrument which the physician can use expertly in cases of human malady, is converted into weapons, to whose power he is almost totally a stranger, when he would employ them against the diseases of brute animals. It is not sufficient to increase the bulk of a dose

in proportion to the bulk of the patient; the operation of simples is different in systems that have different laws; and there are many things which the human frame may safely receive in large proportions, which must on no account be administered to the horse, even in the minutest. It requires the sacrifice of as many years to become a skilful veterinarian, as to become a skilful physician: the acquisition of the science and the practice of each is a task sufficient to engage one man's life; and the contrary opinion is a portion of that ancient error, which, while medicine was regarded as the province of the learned and the few, supposed the veterinary art on a level with the most ordinary capacities. If the veterinarian is free from the embarrassment which the varied and violent influence of the mind on the human structure causes to the physician, he finds an abundant source of trouble and perplexity in the muteness of his subjects, to which the physician is not subject; which renders it essential that the veterinarian should add to his professional knowledge an active and observing mind, and a cautious, accurate, and penetrating judgment.

The advantage of extending the influence of science to our farms, and of applying it to the preservation of our cattle, cannot be made to appear more sensibly, than by considering the ravages sometimes made among them by contagious and epizootic diseases, the virulence of which might yield to a judicious and scientific treatment; when the only remaining alternative, ruinous in its consequences to the grazier and to the public, is in the slaughter of the cattle. All that the practice of our hospitals can teach is unable to qualify for these emergencies, much less can adequate assistance be found in the worker of a country forge. It is only in the direct experience of the case, and studies properly adapted to it, that relief may be obtained.

As the proper treatment of distempers in horses and other cattle is of the highest commercial as well as domestic importance, it is incumbent on this nation to institute and protect a veterinary school, in which their anatomical construction, the diseases to which they are subject, and the remedies proper to be applied, may be regularly taught. Such an institution cannot fail of becoming generally important to the nation, and every part of it will gradually enjoy the advantage of possessing enlightened practitioners, on whose care and skill they may securely rely.

The treatment of the diseases of animals being taught scientifically, men of liberal education will cease to look on veterinary medicine as a mean and degrading profession. They

will be convinced that its inferiority to human medicine consists not in the arts themselves, but in the relative importance of their respective subjects; and that it deserves to be considered as a distinguished science, occupying an eminent station in the scale of natural knowledge.

If we observe the dangerous practice of farriers, in their surgical operations, we shall see them daily sacrificing horses, by boldly mangling the organized parts of the body, without knowing any thing of its structure. How many muscles and tendons divided cross-ways! veins opened! nerves destroyed! membranes torn! and essential organs more or less affected, by the ignorant boldness of these unskilful operators, whose reputation has been supported merely by public supineness and credulity.

It must be unnecessary to enlarge on this subject, in order to demonstrate the utility of a seminary for veterinary studies, in a country wherein horses are so universally used for the purposes of agriculture, manufactures, commerce, and pleasure, and where such immense property consists in cattle. Much, however, as this science hath been hitherto neglected, its importance begins to be generally admitted; and it must give pleasure to every considerate mind to learn, that a theoretical and practical school is established for the instruction of pupils; and it now remains only briefly to state the circumstances which have occurred in forming the institution.

In August 1785, the members of the Odiham Agricultural Society resolved, that it should be a consideration for their meeting in October, what were the most likely means to encourage the study of scientific farriery. Nothing, however, appears to have been done by the Society until May 1788, when they resolved to advertise their intention of educating two or more young men in the School of Farriery in the neighbourhood of Paris, and to solicit subscriptions for that purpose; which was not done till after a similar resolution in March or June 1789. In August 1789, they resolved that five hundred copies of their resolutions should be printed, with an address, in which they say, " It is to be lamented, that there is not yet in England any establishment adequate to the desired improvement in farriery, by a regular education in that science, on medical and anatomical principles." And they again express their intention of sending two or more youths to France for instruction.

Early in this same year, 1789, Mr. Sain Bel came to England, and published proposals for reading lectures on the general knowledge of the horse; and in the following year, 1790, he

presented to the public a plan, entitled, "Plan for establishing an Institution to cultivate and teach Veterinary Medicine." At the end of May, or beginning of June, in the same year, several of these plans were transmitted to the Odiham and other societies; and in August following, the Odiham Society resolved that a committee should be appointed to meet in London for the purpose, among other business, of collecting whatever might appear to be conducive to the views of the Society for promoting the improvement of farriery; and elected Mr. Sain Bel an honorary and corresponding member, and one of the committee in London. It does not appear that the committee made any progress in the business; but they continued to solicit assistance from the public, and resolved, on the 12th of January 1791, to meet once a fortnight, to communicate such information as might be received. At the meeting of the 11th February 1791, several gentlemen, not of the Odiham Society, having been informed of the object of the meetings, attended the committee; and at this time the following resolutions were agreed to:—

The resolves of the Odiham Society of the 5th of August and of the 8th October 1790, whereby is acknowledged the receipt of ten copies of a plan for establishing an institution to cultivate and teach veterinary medicine by Mr. Sain Bel, being read,

Resolved, That this Meeting is seriously convinced of the benefits which must result from an institution to cultivate and teach veterinary medicine; that they have observed the effect produced upon the public by the proposed measure of the Society for the improvement of farriery, as also by the plan offered by Mr. Sain Bel. That the ultimate view of the Society tends to the same object as the plan proposed to be immediately carried into effect by Mr. Sain Bel; that it is the opinion of the Meeting, that it is greatly to be desired the plan of the Odiham Society, and that of Mr. Sain Bel, should be consolidated; that as several gentlemen had subscribed towards furthering Mr. Sain Bel's plan, four of the gentlemen present should be desired to consult with Mr. Sain Bel on the subject, and that they should also consider of the best mode of effecting the union; that as soon as this matter should be determined, a meeting should be held for the purpose of forming a society for the improvement of farriery.

On the 18th of February, the gentlemen present were informed that Mr. Sain Bel had acceded to the plan proposed, when they came to the following resolutions:—

This Meeting having taken into consideration the proceedings

on former meetings, and being informed that many respectable persons delay giving in their names as subscribers while the proceedings of the committee are subject to be reported to the Odiham Society, and are under the control thereof, find it expedient to detach themselves from that society. The work in which they are engaged being of so considerable importance (the reformation and improvement of farriery, and the treatment of cattle in general) requires that the attention of the Meeting should be confined to that purpose alone, and be under the sole management and control of its own members.

That from this day forward this Meeting shall be called, *The Veterinary College, London;* that the secretary do write to the secretary of the Odiham Society, to inform him of the above resolution; and that the members of the college conceive that, by detaching themselves, they are more effectually forwarding the liberal and laudable intentions thereof for the improvement of farriery, and that the members hope the society will join them in their plan for promoting the so much wished-for object.

That Mr. Sain Bel be appointed professor to the college.

That a general meeting of subscribers be held on the 8th of April.

That the foregoing resolutions be inserted in the public papers.

That copies be transmitted to the members of both Houses, and other noblemen and gentlemen; as also to the sheriffs of the several counties, to be laid before the grand juries at the ensuing assizes.

Feb. 25.—Mr. Sain Bel attended, and accepted the office of Professor.

April 1.—The Duke of Northumberland having expressed his wishes for the success of the institution, the secretary was directed to solicit him to become president of the college, to which he consented.

April 8.—The college, consisting of sixty-four members, proceeded to the choice of president, vice-presidents, directors, treasurer, and secretary for the ensuing year; they also elected, as honorary and corresponding members, fifteen gentlemen on the continent, eminent for their veterinary abilities. Regulations for the constitution and organization of the college were read and unanimously approved of, subject however to such alterations as might become expedient.

April 19.—A circular letter was ordered to be sent to professional gentlemen in different parts of the kingdom, requesting

the provincial names of diseases incident to horses, bullocks, sheep, &c. with their accompanying symptoms. A letter was also directed to be sent to the Odiham Society, to inform them, that, as the college had appointed a professor of veterinary medicine, they did not think it necessary to persist in the plan of sending young men out of the kingdom for instruction.

May 3.—An abstract of the constitution of the college was ordered to be printed and distributed. A letter was read from the Odiham Society, stating that they had peculiar satisfaction in the establishment of the Veterinary College, and that they had directed their secretary to transmit to the college what papers they possessed relating to the veterinary art; that they considered the college as enabled effectually to execute what they had wished, that they therefore relinquished their intentions; and concluded with observing, that they had requested the subscribers to their fund to transfer their subscriptions to the college.

THE VETERINARIAN, FEBRUARY 1, 1831.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

ALTHOUGH the present article bears date as above, it must be evident enough to our readers, that it is written several days antecedent to such date, that being the day on which it is destined to make its appearance before the public. We preface the observations we are going to make with this remark, that we may not be misunderstood when we say, *to-day* our morning's business brought us into contact with a *dealer*—by which term we mean, a dealer-in-horses—and in the course of conversation with this dealer, it fell out (as it has more than once or twice before) that he gave utterance to complaints, and with much apparent reason, against some of "our cloth," on account of their "manner of doing business," as he expressed it. This "manner of doing business," be it known before we proceed farther, bore relation to the examination of horses in regard to soundness. He complained bitterly that some of our cloth not only put a horse

through such a trying ordeal, that it subjected the animal, though he were ever so sound, to consequent injury; that such ordeal was unnecessarily severe and protracted: and, above all, that (stepping out of their legitimate province) some practitioners had the pretension even to estimate the value, and set the market or just price of the animal.

We listened with some attention to the remarks of the dealer; and we listened to them until we were reluctantly compelled to admit, that they were not altogether the offspring of blind or bigotted self-interest, or any desire or propensity towards unjust dealing. He stated his notions about dealing, and his only desires to be, that every man should "have a fair chance;" but that *he* was robbed of this "chance" by unprofessional-like interference on the part of the veterinary surgeon.

Now, if there be one person more than another hostile to the *mode* dealers of this country in general have of conducting their business, it is the writer of this article; and yet such has been the impression created upon our mind by such murmurings as the above, that, on serious reflection afterwards, we have really considered that the dealer, in the particular above alluded to, was unfairly used. And to this conclusion we have come, not hastily nor (as we have just insinuated) out of any sort of feeling or *penchant* whatever, towards the dealer. We have viewed the subject in all its bearings; and we must declare it, as our opinion, that our acquaintance did make out a case in which the dealer himself appeared to be hardly dealt by.

No one, in the year 1831, need be informed that a "dealer" is by no means an eligible cognomen to walk about town with; how or why such six letters should compose a word, at the present day, so unpalatable to the organs of speech, and inharmonious to the tympanum, we are not about to inquire; we are merely going to shew that, with whatever reputation he may follow his calling, certainly no dealer can do so without having constantly to contend (in the way of business) with difficulties and perplexities of one sort or another, which, to get through at all, require no ordinary tact and judgment; and to get through *honestly* or respectably, demand no little share of a moral quality of a much scarcer description.

It is hardly necessary for a person to possess a knowledge of animal mechanism to be convinced what a very precarious sort of mercantile commodity an animal must be. A watch, and a steam-engine, are both complicated pieces of machinery, and such as require skilful artists to understand and take the management of: but they are neither of them to be compared, even in a mechanical point of view, to an animate machine; which, moreover, possesses this *vital* difference, that (while the others are set a-going, and can be stopped and regulated at the will of their owners) *its* internal mechanism works without the controul even of the animal itself, much less of its possessor; and often works, in spite of all his art can effect, to the destruction even of itself. And when the disorders and casualties of *horses* (above all other animals) are taken into our consideration, together with their continual exposure to the abuses and causes producing them, it becomes a matter of surprise to us that there are so many really and passably "sound" horses as do come before us.

To set all this in a stronger light, and to point out one out of the many vexatious disappointments inseparable from the trade of horse-dealing:—a dealer buys "a lot of young horses" in the country, all sound and promising; he has them travelled with all possible care to the metropolis, where he calculates his profits on them at so much. By the time they arrive in town, it being the spring or autumnal season of the year, some have "caught colds" on the road; and by the time they have sojourned a little in his heated warehouse (stables), some of these contract inflammations in their lungs, of which one or two die, and two or three more become so reduced, that they are rendered unfit to *show* for several weeks, or perhaps months, to come.

Looking at such a case as this (and it is a very common case), we have no right to express surprise or dissatisfaction at the dealer's profits being great: were they not great, he could not live by his business. We do not say this, however, without being well aware that oftentimes their profits are enormous, and altogether unreasonable, nay, even fraudulent; for a species of fraud it is when the animal which a dealer is vending at a *first-rate* price, is itself really of inferior quality.

This subject of *price*, brings us to the consideration of a point

on which we set out, viz. that the dealers appear to have some reason for complaining of the usage they meet with from some of us veterinarians. They ask us, what have *we* to do with price? Our duty is, or ought to be, say they, confined to *soundness* and to *age*:—we may extend it to "make and shape," and to *action*; but certainly *not*, contends the dealer, to *price*. As far as the real and intrinsic value of the young untried animal is the consideration, we apprehend that neither the dealer nor the veterinarian can put the purchaser in the true possession of it: the raw, half-trained "young one," is to its purchaser a perfect "lottery ticket:" it may turn out a "trump," or it may prove a luckless commodity, dear at any price. Albeit, of the *two*, the dealer certainly can better set a value on the animal, than the veterinarian: he knows what it cost; he has had more or less trial of it; and he is best acquainted with the current or market price of such an article. Possessing these advantages, the dealer, as vender, is assuredly the *proper person* to fix the price; and we must add that, in our opinion, that veterinarian steps out of his road, who, from so cursory an examination, pretends to set one for him. And even *could* the veterinary practitioner (from certain circumstances having fortuitously come to his knowledge concerning the animal in question) estimate his value better than the dealer, still should we contend, that between man and man, between vender and purchaser, it is a part of the affair concerning which *he* certainly ought to have nothing to say.

We never felt more inwardly gratified than on one occasion that we chanced to be at the elbow of a very clever experienced practitioner in our art, at the time he was examining a horse for a gentleman on account of soundness, on hearing him reply, in answer to a question from his employer, as to the value or price of the animal—"It is quite out of my power, sir, from so cursory a knowledge of your horse, to form any estimate of his *value*: but, even though I knew how much he was worth to a farthing, I must be excused from satisfying your inquiries on *that* head, since price is an affair which in nowise concerns *me*;—it lies with *yourself* only, and the *dealer*."

A living animal is that sort of merchandize upon which a

fixed price can hardly be set. A *good* horse is invaluable: a *bad* one, worthless. What would not one man give for a "clever hackney"? another, for a "perfect hunter"? a third, for an excellent and quiet chaise-horse? a fourth, for a superb charger? a fifth, for a matchless racer? And no consideration whatever would induce many persons, in the possession of these perfections of their kind, to part with them. The dealer is the only person of whom they are likely to be obtained; and when such a known animal proves to be for sale in his hands, can we wonder that he should make a large demand for him? Certainly not, when we calculate that not one in a thousand ever comes up to our ideas of perfection.

Many might suppose that horse-dealing was an exceedingly lucrative business. And so it most undeniably is *on occasions:* but, taking it in the aggregate, we for our part should say, that, generally speaking, it was a very speculative and hazardous undertaking. It is true that several individuals, dealers in horses, in London more particularly, might be named who have realised large fortunes by the traffic: but, were we to set the names of those that have proved unfortunate against them—those who have not a guinea to call their own, were their affairs wound up, together with the many who have failed and come to ruin—we apprehend the catalogue would present such a contrast, as would alter the opinion of him who might, otherwise, have entertained most delusive notions about horse-dealing.

The practice of horse-dealing, in itself, is one that calls forth all the skill and craft in the trade a man can possess himself of; at the same time that it demands acute perception, sound judgment, forbearance, and temper. When a dealer finds himself embarked in the middle of a horse-fair for the purpose of "buying a lot of horses," he is constrained to see "the thing he wants" with "half an eye:" but he has no sooner found it, than he need have as many eyes as Argus had to look over the animal in the twinkling of an eye, to see that it be "all right." The business, however, is often done more on the faith of the breeder or vender in the country of whom the London dealer takes "the lot," perhaps even with scarcely any "looking

over" at all. On their arrival in town, he discovers that one of them has a spavin; another turns out a roarer; a third has a cataract in his eye, and so forth: or it *may* happen, that some of these defects are not known to him until the animal (being sold for sound) is returned on his hands for such cause of unsoundness. The gentleman who made the purchase declares him to be a rogue for having attempted such a fraud: so that the dealer is not only saddled with his unsound horse, but loses his customer, and (with that customer at least) his reputation. This, certainly, appears a hard case. But, let us put the same case in another point of view. Supposing the dealer *had* discovered the defect complained of, and was privy to it at the time he sold the horse; how is he to act? If he make this discovery known to the gentleman, the latter, most assuredly, will not look at his horse: and if he, with such a knowledge, warrant the animal to be sound, he is not only, by law, compelled to take the horse on return, but has, to all intents and purposes, committed a fraud, and is thenceforth deservedly held in low estimation. In fine, it is a most trying and difficult part to play; and few there are who can play it profitably at all; but much fewer who play it *honestly* as well. Perhaps some of our kind readers will lend us a light or two to throw upon this interesting subject.

Review.

Quid sit pulchrum, quid turpe, quid utile, quid non.—Hor.

Traité Elémentaire de Matière Médicale, et Pharmacologie, Vétérinaire; par M. Moiroud. Paris, 1831.

[Continued from p. 47.]

We continue our translation and analysis, and purposely without remark. The Professor now considers the second class of debilitants; those which tend to moderate the velocity of the blood, and the too great activity of certain organs, and the production of animal heat. He observes, that if they were employed in their ordinary state of concentration, they would be excitants; but that, being sufficiently diluted, they possess the qualities which he attributes to them. They produce momentary contraction of

the capillary vessels, paleness of the tissues, and diminution of heat; but their effect is transitory, and speedily succeeded by reaction. They are useful, therefore, only when, by their local action, they diminish the inflammation and heat of a part. Taken into the circulation, they increase the aqueous part of the blood, and diminish the force and frequency of the pulse—relieve thirst, and abate febrile symptoms. In their general effects they are analogous to the emollients; but being too long continued, irritate the digestive organs, and purge.

We here expected a long list of temperants and refrigerants. M. Moiroud speaks of one drug alone.

VINEGAR, in a state of concentration, is an excitant, constricting the minute vessels, but the blood soon afterwards flowing through them more rapidly than before,—this particularly when it is applied hot; therefore employed in revulsive frictions on the extremities, when the vital forces seem concentrated in some diseased organ, as in inflammation of the bowels. When diluted, it is refrigerant and antiseptic, and therefore used to acidify various drinks in inflammatory complaints. It has been recommended in the hoove of cattle. Mixed with honey, it softens many cooling drinks. It is a refreshing drink to animals hardly worked. It is used for gargles and injections, and for the fomentation of inflamed parts. It is mixed with warm water in baths for acute founder; and it enters into many cooling poultices. Mixed with mustard-seed, it is a good blister; and it is an excellent disinfectant. It is an antidote to opium, hemlock, and belladonna.

M. Moiroud next proceeds to the second grand division of medicines, EXCITANTS, which augment the intensity of the vital powers, recal the action of the different organs, and render their functions more rapid and energetic.

He divides the excitants into *general* and *special.*

GENERAL EXCITANTS, although they extend their influence over the different tissues, do not produce the same effect on all: some accelerate the circulation, others increase the contractility of the fibres, and others contract the tissues without a decided tonic effect.

The first class of general excitants are,

STIMULANT and DIFFUSIBLE.—They accelerate the course of the blood, give new activity to the organs, and increase the extrication of animal heat. They arouse and accelerate the movements of the living tissues, and develope their sensibility; they propagate their effects to the neighbouring parts, and even diffuse themselves over the whole frame. In consequence of this, the pulse is more frequent and strong, the respiration quickened, the sensibility increased, the secretions rendered more abundant,

and every organ endued with new energy. These effects result, in some, from the impression made on the nerves of the stomach, and in others from the absorption of the most subtle portion of the drug into the vital current. These actions may be distinct, yet often rapidly succeed to each other. Some of these excitants, from their effects, although extended, yet confined to certain tissues, are called cordials, sudorifics, &c.; others are more truly diffusible. They are useful in diseases accompanied by much debility, in those which are connected with a tendency to decomposition, and in all the varieties of typhus. They are indicated in indigestion, flatulence, and every disease not accompanied by irritation. They are drawn principally from the animal and vegetable kingdoms.

First among those of animal origin he places the

Liquor Ammoniæ, *the volatile spirit of ammonia*, or *harts-horn*. He says that it is one of the most powerful medicaments. In its concentrated state it is a poison; but properly diluted, and given internally, it augments the animal heat, gives force and frequency to the pulse, increases the cutaneous perspiration, and gives to all the functions new activity. It is useful in all typhoid diseases, and in all exanthematous ones, where the eruption is suppressed: but as these affections are often combined with an affection of the bowels, the ammonia must be administered with caution. It is peculiarly efficacious in flatulence produced by green food, and especially in the hoove of cattle. It is given in cold water or aromatic infusion, in doses of from one to six drachms for oxen, and from two scruples to a drachm and a half for smaller animals. The dose may be repeated twice in the day, and should not be administered in too warm a menstruum, lest a portion of it should be evaporated and lost.

In a concentrated state it is employed, externally, as a rubefacient and caustic. It is applied to the wounds inflicted by rabid or venomous animals, and particularly used for the bite of the viper. It is made into an ointment with lard, to produce irritation of the skin. United with an essential or fixed oil, it composes frictions for rheumatism and all chronic and indolent swellings. In its gaseous state it stimulates the schneiderian membrane in fainting, and the conjunctiva in gutta serena.

Carbonate of Ammonia: *Smelling Salts.*—Its action resembles that of the liquor ammoniæ, but is less powerful. It has been given in glanders and farcy. By giving new activity to the system, it may favour the resolution of chronic enlargements; but its special influence on the absorbent system has not been proved. It has been used with advantage in epizootic complaints, accompanied by great prostration of strength. It is given, incorporated

with honey, or the extract of juniper, or in an infusion of bitter herbs, in doses of from two to eight drachms for the horse, and from four to twelve for the ox.

Acetate of Ammonia: *Spirit of Mindererus.*—This possesses the properties of ammonia, but is less active. It exercises its influence chiefly on the urinary secretion, and occasionally on the cutaneous perspiration. It is especially efficacious against all diseases accompanied by a tendency to gangrene, and a decomposition of the fluids. It has been used with marked advantage in acute glanders, and is not without effect in dropsy without irritation, and in anasarcous swellings. Its dose is from four to ten ounces for large animals, or from two to eight for small ones, and given in a decoction of bitter or aromatic herbs.

Hydrochloride of Ammonia: *Sal Ammoniac.*—It is employed internally as a powerful excitant. It is less active than the carbonate, and more so than the acetate. Like the last, it considerably increases the urinary secretion. Two ounces given to a horse caused considerable inflammation of the mucous coat of the bowels. In diseases of debility it may be given, united with gentian, bark, and other vegetable tonics. It is said to have been exhibited with much advantage in farcy. It should be given in the form of an electuary, with honey or treacle, when it less irritates the stomach. Its dose is from one to eight drachms for large animals, and from twenty grains to a drachm for small ones.

Applied externally, it stimulates chronic and sanious ulcers. Dissolved in cold water, it speedily allays excess of heat; it is, with this intention, used as a bath in cases of founder. It is applied as a resolutive to schirrous testicles, and to œdematous tissues, and to those which are threatened with mortification. Made into a liniment with spirit and soap, it is useful for swellings of the joints.

Of the substances drawn from the vegetable kingdom is, first, the

Cinnamon, which, given internally, stimulates the digestive canal, and extends its influence to the circulatory and nervous systems,—useful in indigestion and flatulence, and in debility generally. It is administered with honey, or mixed with iron, bark, or gentian, in doses of from four drachms to two ounces for large animals, and from half a drachm to four drachms for small ones.

White Canella Bark, and Winter's Bark.—These are energetic stimulants, but the former is preferred, and is most easily obtained.

Cascarilla Bark is a powerful excitant, and may be used

instead of bark in inflammatory affections assuming the typhoid form, and particularly where there is danger of irritating the intestinal canal. It is administered in the same dose and form as the canella, and should be combined with the same adjuvants and corrigents as the other vegetable and mineral excitants.

Cloves are very powerful stimulants. Being administered internally, they warm and rouse the stomach, quicken the circulation, and give renewed activity to every function. They are used in powder, or in infusion whether aqueous or spirituous, in doses from four to eight drachms. Being retained in the mouth, they increase the salivary discharge.

Nutmeg.—The oil has been recommended in veterinary practice for the relief of local spasms, and in tetanus and chorea; but the uncertainty of its action and the greatness of its price have caused it to fall into disuse. The nutmeg is an energetic stimulant, and may occupy the same rank as the clove, and may be employed in the same dose, and under the same circumstances. It is frequently used by farriers in inflammation of the bowels accompanied by colic, and in many other diseases, in which every stimulant is imperiously counter-indicated.

Black Pepper is a powerful excitant. In its local action it is almost a rubefacient. Applied to a mucous membrane, it causes inflammation, and augments the usual secretion. Administered in a proper, dose it produces general excitement, powerful and lasting. It is a warm stomachic and aphrodisiac. It is given to large animals in doses of from four to eight drachms; it should be used, however, with caution, and the state of the digestive organs should be previously ascertained. It is sometimes exhibited in the form of a troche to promote expectoration. Mixed with greasy or resinous matter, it makes a useful digestive or resolvent ointment.

Ginger resembles pepper in its medicinal effect. Combined with vinegar, it is used in many of the contagious diseases of cattle, and in dropsy. It is given in doses of from four to eight drachms.

Snake-root.—This is a powerful and permanent stimulant. Its influence is promptly extended to the circulatory and exhalent systems. It is beneficial in cases of chronic debility. It is one of those medicines the use of which should be continued for a considerable time. Its effect gradually becomes more powerful and lasting. It is said to be an excellent remedy against the bites of serpents, and thence it derives its name. The dose for large animals varies from one to three ounces, and, for small animals, from two to four drachms. It is often associated with other stimulants, as muriate of ammonia, bark, and gentian.

Horseradish.—This is a powerful stimulant. Applied externally, it is a rubefacient. Applied internally, it rouses the stomach, and, sympathetically, almost all the other organs, but it has its principal influence on the urinary passages. It is useful in dropsies of all kinds, chronic debility, and in some inflammatory complaints which take on a chronic character. In some of the epizootic diseases of cattle it is very useful in this connexion. It is scraped and mingled with barley, or oatmeal or bran, and is generally readily eaten. Sometimes, however, a tincture or an infusion of it is made.

Wormwood is a stimulant and a tonic. Its effect is as prompt and extensive as the former, and as durable as the latter. It increases the activity of the digestive organs. It is indicated in dropsy and in all cases of debility. Its effect is more lasting than that of most other stimulants, and is therefore preferred for recovering the tone, and strengthening the tissue of the different organs. It is employed also, corresponding with its name, as a vermifuge, either alone, or associated with other drugs. The dose in the dry state is from two to four ounces for large animals, and from two to four drachms for smaller ones. When the green leaf is used, double the quantity is required.

It is either infused in water, or some fermented liquor, or made into balls with honey or treacle, and extract of juniper and flour.

It transmits its bitterness to the milk of cows which have eaten of it a few days, and even the flesh contracts a disagreeable and bitter flavour. It was formerly supposed to be poisonous to the horse, but two pounds of it given to a horse produced only the effect of other stimulants. It is often administered with gentian, carbonate of iron, sal-ammoniac, and other stimulating substances.

It is used externally in lotions and fomentations, and stimulating injections; and tinctures, extracts, and electuaries, are prepared from it.

Chamomile is endowed with evident stimulating and tonic powers. It is used in indigestion, in colic or flatulence from over-feeding, and in weakness of uterine action. Although its effect is not so permanent as that of wormwood, it may be fairly substituted for it in many cases. It is administered in water, ale, or wine, in the quantity of a pinch to a pound of the liquid. These infusions are used as drinks, or for injections. It is used externally in detersive and resolvent lotions and fomentations. A great many medicaments may be associated with it without any decomposition, such as the soluble salts of iron and lead, corrosive sublimate, nitrate of silver, and gelatine.

Pellitory of Spain.—Although this plant is endowed with stimulating properties sufficiently energetic, it is employed in veterinary practice only as a sialogue; being retained in the mouth to promote a discharge of saliva, or as a detersive gargle.

Angelica acts on the animal œconomy as a general and powerful excitant. It rouses the digestive powers, and increases the action of the heart. It resembles in its effect the galangal and the snake-root; but on account of its cheapness is oftener employed than they are, and, particularly, in those epizootic diseases which require the use of stimulants. It is given in powder or infusion, and in doses from one ounce to four for large animals.

Master Wort.—This root has an action on the animal economy similar to that of angelica. These two roots possess the highest stimulating power of all the umbelliferous plants. The master wort is somewhat more acrid than the angelica, and not so valuable.

Anise-seed is an aromatic stimulant, principally employed as a warm stomachic and carminative. It may be given to large animals in doses of an ounce, and is usually administered as an infusion in water, wine, or spirit.

Peppermint readily yields its active principles to water, wine, or spirit, and is employed as a stomachic, carminative, cordial, and sudorific. It forms resolvent and detersive lotions, fomentations, and injections. It sometimes enters into the composition of stimulating poultices.

Sage is an excitant, but, on account of the extractive matter which it contains, acts also as a tonic and astringent. It is chiefly indicated in debility of the digestive apparatus, and especially in chronic diarrhœa. It is sometimes administered in ball with treacle and the extract of juniper, but oftener used in infusion in water or spirit. Externally it is employed for the same purposes as peppermint.

Lavender.—The essential oil of lavender is one of the most energetic excitants, but it is rarely employed externally. It is used as a stimulating embrocation for chronic swellings, bony and synovial tumours, and rheumatism. It is used alone or mixed with spirit of wine, oil of olives, ammonia, or spirit of turpentine, according to the degree of stimulation intended to be produced. In whatever composition it is employed, it is less irritating than the turpentine, and not so liable to blemish the part to which it is applied.

Juniper.—It is to the resin and the essential oil which the juniper berries contain, that they are indebted for their stimulating and diuretic effects. In a small dose, as one ounce (for

large animals), their effect is confined to the digestive organs; but in doses of three ounces, they extend their influence to almost all the functions, and particularly to the urinary. They are therefore given in dropsy, serous infiltrations, and the rot in sheep. They are also useful in many epizootic maladies of cattle. They are infused in water or wine, or the powder of them made into a mass with honey or treacle. To increase or modify their effect they are frequently mixed with gentian, carbonate of iron, nitre, and chloride of soda. An extract is prepared which contains all its virtues, and is the base of many tonic and stimulating electuaries.

Elder.—The flowers are employed in the form of infusion, for resolvent and detersive lotions, and particularly for inflammation of the eyes. They are combined with acetate of lead, muriate of ammonia, &c. The leaves are used as resolvents and aperients in anasarca, swelled legs, farcy, and the rot.

Guaiacum has on animals a very uncertain effect as a diaphoretic. It must be given in doses of at least four ounces, for large animals, and repeated three times in twenty-four hours. It is oftenest employed as an auxiliary to other medicines, as sulphur, some salphurets, sassafras, and sarsaparilla. The dose must then be materially diminished.

Sassafras is far preferable to the guaiacum, and has a determined action on the skin, and increases the insensible perspiration. It is rasped, infused in water or wine, and given in doses of four ounces.

Sarsaparilla.—The immediate action of sarsaparilla is even weaker than that of the two last drugs, and, as its price is greater, it is seldom used.

Alcohol ranks among the most energetic of the diffusible stimulants. When it is concentrated, it is an irritant, and even a rubefacient, whether externally or internally applied. When it is introduced into the digestive tube in a large dose, it spreads itself through the circulating current, associates itself with the blood, impregnates in some manner all the tissues, strongly excites all the organs, and especially the brain, and sadly disorders the general system. While these phenomena are exhibited, the alcohol is endeavouring to escape by pulmonary exhalation, as the breath expired will sufficiently attest.

Carried into the stomach, its action is more energetic than when it is introduced into the cellular tissue. Its effects are more prompt when it is injected into the peritoneal cavity, or into the jugulars. In the latter case, it produces death, by coagulating the blood.

Its strength being diminished, it increases the internal heat, and

promptly extends its stimulating power to the nervous and circulatory systems, first by sympathy, and afterwards by absorption.

Alcohol is rarely administered alone, internally, to any quadruped. It is usually charged with some medicinal principle, and lowered either with water or some aromatic infusion. Its stimulating properties assist or modify those of the substances with which it is associated.

Alcohol is one of the most valuable vehicles used in pharmacy. It is the very best dissolvent of a great many medicaments, the employment of which is rendered more easy, and their action increased—their particles being separated, and their absorption favoured.

Mixed with water or an aromatic infusion, it is frequently employed externally to hasten the resolution of chronic swellings, to cleanse old wounds, and to strengthen the tendons and articular ligaments.

Associated with resins, or camphor, or essential oils, or some mineral acids, it composes many officinal preparations, the indications of which are frequent and varied. It is the aqueous alcohol, or ordinary rectified spirit, that is usually employed. Fermented liquors owe the greater part of their stimulating property to the alcohol which they contain.

Sulphuric Ether stands first among the diffusible stimulants; at least its action is the most prompt and energetic. When received into the stomach, it suddenly excites that organ, and immediately reacts on the circulatory and nervous systems, whose functions it seems, in some cases, to render natural and regular.

Its great volatility, and the readiness with which it is absorbed, renders its influence prompt and general, but it is not lasting. Although different in different quadrupeds, its effects are less in all of them than in man, whose nervous susceptibility is much greater than theirs.

It is an antispasmodic, a carminative, and a sedative. It is used in all nervous affections, indigestions, and cholic, when there are no marked inflammatory phenomena. It should not be forgotten, that it is an excitant, and that it displays its influence, and calms certain perverted organic movements, by changing the mode of morbid excitation, and modifying the sensibility. It is administered to larger animals, either in water or some appropriate fluid, in doses of from half an ounce to three ounces; and the dose should be repeated several times a-day. It is usually associated, according to circumstances, with ammonia, camphor, opium, or valerian. Mixed with an equal quantity of alcohol, it constitutes the "Anodyne Liquor of Hoffman." but whose effect is much less than that of pure ether.

It is particularly useful when applied externally, by removing, in the process of rapid evaporation, a great quantity of caloric accumulated on any part, as in certain cerebral congestions, and recent burns. If, however, the employment of ether is the most expeditious method of removing superficial heat, it is not the most economical, nor the most generally employed.

Camphor.—There are few medicines whose action on the animal economy is so variable as that of camphor. It is, by turns, a diffusible stimulant, or a sedative, according to the dose in which it is employed, the manner in which it is administered, and the state of the patient: we are, therefore, often puzzled to decide to what class of medicines it belongs.

Applied on the shin or on the cellular membrane, in the form of powder or soft paste, it produces no appreciable effect, unless the tissues are ulcerated or inflamed, when it lightly reddens and irritates them. In cases of gangrene, camphor does not excite any re-action, but its effects are confined to concealing the fœtid smell which may proceed from them; but if it be so applied that it shall penetrate to a certain depth within the tissues, it then rouses the part again to healthy action, modifies the sensibility, and leads to salutary changes. In the south, and where wounds, and particularly in sheep, so soon take on a gangrenous character, many shepherds sprinkle camphor over the ulcers with good effect.

Being brought into contact with the mucous membranes, it exerts on them a more powerful action. Being introduced into the stomach, in doses of three or four drachms mingled with oil or the yolk of eggs, it produces in the dog uneasiness, trembling, and convulsive motions, resembling epilepsy. The respiration is laborious, the pulmonary exhalation takes on a camphorated smell, and the mouth is filled with frothy saliva. Insensibility follows, which is interrupted by deep sighs, and which is usually the prelude to death.

On post-mortem examination, inflammation is found in the stomach, with slight ulcerations, especially if the medicine had not caused vomiting; but the lesions are not so decided that we could affirm that they were the cause of death. Camphor, in these cases, acts on the nervous system, the functions of which it perverts.

Given to the horse, in doses of two ounces, it produces spasmodic movements and quickness of the pulse, without further ill effect. These appearances continue but a short time, and are often very slight.

Camphor easily passes from the digestive canal into the circulation; but, like other substances that are with difficulty assi-

milated, it is soon expelled. It is exhaled from the skin, and the mucous membrane of the bronchial passages. It never passes away by urine.

The sedative effects of camphor are seldom well marked, although it sometimes appears to diminish the force and frequency of the pulse, and to ease pain. It is, probably, on account of its supposed antiseptic quality that it is recommended in some of the epizootic diseases of cattle, in typhoid affections, and in inflammation of the lungs with gangrene: but as its most manifest action is excitement of the stomach and bowels, it must be injurious when these organs are already the seat of intense inflammation. In general, it is only at the decline of inflammatory affections that camphor should be used. It is then associated with tonics and astringents, and sometimes with vegetable and mineral stimulants. In some desperate cases of this kind camphor may so modify and change the sensibility of the organs as to produce a salutary revulsion. Camphor is most indicated to combat nervous affections, primary or sympathetic, where there is no intense inflammation.

It is useful, however, in irritation of the urinary canal, and especially when produced by cantharides. It is then regarded as a kind of specific; but it should be administered, interiorly, in a great quantity of mucilage. Applied to the skin at the same time with the vesicatory of whose effect on the urinary passages we are doubtful it is not much to be depended upon.

It is given, to large animals, in doses from two drachms to an ounce and a half. It is either reduced to powder, and incorporated with honey, or it is dissolved in the yolks of eggs, alcohol, or ether. It is sometimes administered in water alone. To increase its antispasmodic effects, it is associated with assafœtida, opium, and ether; to aid its tonic and antiseptic powers, it is combined with bark and acetate of ammonia.

It is often employed, externally, dissolved in oil or alcohol, as an anodyne and discutient, in rheumatism, glandular enlargements, many chronic irritations of the fibrous tissue of the extremities, and distention of the tendons and articular ligaments. Evaporated on hot coals, it enters the respiratory passages, excites the mucous membrane of the bronchial tubes, and relieves chronic cough.

Assafœtida has the ordinary effect of stimulants on the organs submitted to its influence. Introduced into the stomach in doses of some drachms, it excites the appetite and arouses the digestive powers; but if the dose is increased to three or four ounces, the whole alimentary canal is irritated, and purging follows. The influence of this medicine rarely extends to the cir-

culatory system, and thence to the other functions: but it may act on the nervous system so as to calm irritation and remove spasm. It is given in chorea, tetanus, and palsy; but its use must be continued during a considerable time. Recognized as a diffusible stimulant, when used in gangrenous affections and the epizootic diseases of cattle, it, like camphor, should be employed with caution. If administered at their commencement, and when their inflammatory character is marked, it must aggravate every disease of this kind. It has been given with benefit, in small doses, in chronic cough. It has also been employed with some success in farcy; and it is not without effect as a vermifuge.

Whether alone or with camphor it is applied externally in the form of plaister, and hastens the resolution of indolent swellings. It is sometimes contrived to be retained in the mouth to promote salivation. It is given to large animals in doses from two drachms to three ounces, and may even be carried to four ounces in cattle. It may be given in the form of ball or electuary, or suspended in some aqueous or spirituous fluid, or dissolved in vinegar.

SAGAPENUM possesses the same medicinal properties as the assafœtida; but it is less active, less certain, and therefore not so frequently employed.

GUM-AMMONIAC has been celebrated by many veterinarians as an expectorant, an incisive, and a deobstruent; but it is not superior to the substances just described, and certainly not to the assafœtida.

VALERIAN.—When given internally, its effect resembles that of other stimulant vegetables. It is said to exercise a peculiar influence on the nervous system, and especially when given on several successive days. It is employed in chorea, epilepsy, tetanus, and other nervous complaints; but it does not always justify the confidence placed in it. Nevertheless, as the maladies in which its use is indicated are among those against which we possess only feeble and uncertain remedies, it must not be banished from the veterinary pharmacopeia.

It is said to be a vermifuge; and if it possesses this property in the dog, it is probably not inactive in the larger herbivorous animals. It is given in powder, or in a watery infusion, in doses of from one to four ounces for larger animals, and from one to four drachms to the dog.

[To be continued.]

ERRATUM.—P. 32, line 2, for "deportment" *read* "department."

THE

VETERINARIAN.

VOL. IV. MARCH, 1831. No. 39.

ANATOMY OF THE HORSE.

[Continued from p. 65.]

3.—ANTERIOR ILIO-FEMORAL REGION.

THE muscles in this region form the fore and prominent part of the haunch.

TENSOR VAGINÆ.—*Ilio-aponeuroticus.*

Situation.—Antero-external part of the haunch.

Figure.—Broad; triangular; flattened.

Attachments.—Superiorly, to the anterior spine of the ileum: inferiorly, to the faschia lata.

Relations.—Anteriorly and externally, with the skin; internally, with the posterior end of the panniculus, with the adipose matter enveloped in the flank, and with the iliacus, rectus and vastus externus.; posteriorly, with the glutei-maximus et externus.

Structure.—Tendinous and fleshy at its superior attachment, from which it expands into a broad fleshy belly. About midway between the pelvis and stifle, it sends off a thin expansion of tendon, which becomes continued into and confounded with the faschia lata, largely contributing to it.

Action.—To draw up and render tense the faschia lata; through whose interposition and connexion it will also aid in the advancement and elevation of the haunch, and seemingly in the extension of the thigh.

RECTUS.—*Ilio-rotuleus.*

Situation.—Forming the anterior prominence of the haunch.

Form.—Elongated; cylindroid; fusiform; broader and thicker in the middle than at either extremity.

Attachments.—Superiorly and anteriorly, to the dorsum of the

ileum, above and rather in front of the acetabulum: inferiorly and posteriorly, to the supero-anterior part of the patella.

Relations.—Its upper part lies between the iliacus and tensor vaginæ. The body of the muscle is bounded laterally by the two vasti; posteriorly, by the femoral bone; and anteriorly, by the faschia lata. It has also relations to the anterior crural nerve, and the femoral bloodvessels.

Structure.—The superior attachment consists of a broad, flat, bifurcated tendon. The chief bulk is fleshy. The antero-inferior and lateral parts are covered by aponeurosis, which ends in a thick flattened tendon running to the patella.

Action.—Similar to that of the vasti and crureus,

TRI-FEMORO-ROTULEUS.

The three following muscles may either be considered under this name, as forming altogether a *triceps* muscle, or they may be viewed as three distinct muscles. The French anatomists prefer the former plan; but our English schools, the latter; and in accordance with these schools, I shall here consider them separately.

VASTUS EXTERNUS.—(*Outer Head of the Tri-femoro-rotuleus.*)

Situation.—Antero-external side of the haunch.

Form.—Semi-oval: internal side, flattened; external, convex; thickest in the middle.

Attachment.—Superiorly and anteriorly, to the root of the trochanter major, to the trochanter minor externus, and to the whole outward surface of the body of the femoral bone. Inferiorly and posteriorly, to the supero-external part of the patella.

Relations.—On the inner side, with the preceding muscle; on the outer side, with the tensor vaginæ and faschia lata; posteriorly, with the femoral bone and biceps femoris.

Structure.—Superior attachment, tendinous and fleshy: the other parts are fleshy, with the exception of a thin aponeurosis spread over its postero-external side.

VASTUS INTERNUS.—(*Internal Head of the Tri-femoro-rotuleus.*)

Situation.—Antero-internal part of the haunch.

Form.—Semi ovoid: thicker in substance than the last muscle.

Attachment.—Superiorly and anteriorly, to the neck of the femoral bone, to the root of the trochanter minor internus, and to the entire inner part of the body of the bone. Inferiorly and posteriorly, to the supero-internal part of the patella.

Relations.—On one side with the rectus; on the other with

the sartorius: posteriorly, with the femoral bone; anteriorly, with the faschia lata.

Structure.—Covered by a thin aponeurosis; otherwise, fleshy. The aponeuroses proceeding from the vasti extend downward over the patella to be fixed to the tubercle of the tibia. Inferiorly, an aponeurotic tendon separates it from the crureus.

CRUREUS VEL CRURALIS.

(Middle Head of the Tri-femoro-rotuleus.)

Situation.—Deep-seated in the hollow formed by the rectus above, the vasti on either side, and the femoral bone below.

Form.—Fusiform; elongated.

Attachment.—Antero-superiorly, to the ileum, just above the acetabulum; postero-inferiorly, to the body of the femoral bone and to the patella.

Relations.—With the muscles and bone to which it lies contiguous.

Structure.—Tendinous at its extremities; intermediate parts, fleshy; under part, aponeurotic.

Action of the two Vasti and the Crureus, considered as a Triceps or one entire Muscle.

In consequence of their connexion, through the intervention of the patella and its ligaments, with the tibia, these muscles become direct extensors of the thigh; and their power as such is considerably enhanced by the peculiar construction of the stifle-joint, which enables them to act with the combined mechanical advantages of pulley and lever. In progression, they raise the thigh forwards and advance it under the body; and, in that position, as soon as the limb has become a fixed point, they will assist in progressing the haunch.

INTERNAL ILIO-FEMORAL REGION,

Comprehends the muscles forming the prominent rotundity of thi nner part of the haunch.

SARTORIUS.—*Sub-lumbo-tibialis.*

Situation.—Antero-internal part of the haunch.

Form.—Long, slender, pyramidal; anterior part broadest.

Attachment.—Antero-superiorly, to the bodies of the posterior lumbar vertebræ, and to the brim of the pelvis midway between the symphysis pubis and the anterior spinous process of the ileum; inferiorly, to the supero-internal part of the tibia, and to the internal condyle of the femoral bone.

Relations.—On the outer side, with the psoas magnus, vastus internus and gracilis; on the inner, with the faschia lata and skin. Along its posterior and outer border run branches of the femoral bloodvessels.

Structure.—Fleshy and rather pale; except the extremities, which are aponeurotic. Its anterior aponeurotic end is so intimately united with the psoas parvus, as it runs forward side by side with it, that it is somewhat difficult to make out the distinct lumbar attachments. The inferior termination consists of a broad, flat, glistening tendon, which (in union with the tendon of the gracilis) expands into an aponeurosis, spreading over the entire inner side of the stifle joint.

Action.—To assist in bending the leg; and, in the flexed position, to give it a rotatory motion inwards.

GRACILIS.—*Sub-pubio-tibialis.*

Situation.—Superficial, on the internal part of the thigh.

Figure.—Quadrilateral, broad, thin, flattened.

Attachment.—Superiorly, to the symphysis pubis, extending as low down as the ischium; inferiorly, (along with the sartorius) to the supero-internal part of the tibia, and the internal condyle of the femoral bone.

Relations.—Along its antero-internal border, with the pectineus and sartorius; on its inner side, with the adductors; on its outer side, with the faschia lata and skin.

Structure.—The pubal attachment is tendinous and fleshy: inferiorly, it ends in a broad aponeurosis, which, forming a union with the tendon of the sartorius, expands upon the inner side of the stifle, and is continued upon the leg into the tibial faschia.

Action.—To bend the leg, and (when flexed) to rotate it inwards.

PECTINEUS.—*Super-pubio-femoralis.*

Situation.—Inner, upper, and anterior part of the haunch.

Form.—Fusiform; thickest in the middle; upper extremity flattened.

Attachment.—Superiorly, to the brim and anterior surface of the pubes, near the symphysis; and to the infero-anterior part of the same bone, near the acetabulum. Inferiorly, to a long ridge extending from the trochanter internus.

Relations.—On the outer side, with the sartorius; anteriorly and internally, with the gracilis; posteriorly, with the adductors.

Structure.—The superior attachment consists of a stout bifur-

cated tendon; the inferior is both tendinous and fleshy. Its fleshy belly is striped with aponeurosis.

Action.—To flex the haunch, and at the same time adduct it.

ADDUCTORES FEMORIS.

Different anatomists pursue different modes of treating of these muscles; and all may be proved to be right or wrong, according to the light in which the dissector views the parts, and the artificial divisions which his knife may make of them. One considers the three adductors together, as a *triceps* muscle; another describes them as three separate muscles; while a third looks upon them as forming a single muscle and a *biceps*. The last mode of proceeding appears to me to be in the most strict accordance with nature; however, in respect to the more prevalent usage, I shall point them out as *three* muscles.

ADDUCTOR BREVIS.
ADDUCTOR LONGUS. } *Sub-pubio-femoralis.*

Situation.—Deep-seated, on the inner part of the thigh.

Attachment.—Superiorly, (both having one common attachment) to that part of the pubes included between the symphysis and the acetabulum; inferiorly, the short adductor is attached to the middle third of the body of the femoral bone; the long adductor to the lower third of the body of the same bone, and to its internal condyle.

Relations.—On the outer side with the gracilis; and on the inner, with the trochanter minor internus. Along their anterior borders run the pectineus and sartorius. Posteriorly, lies the adductor magnus. Between these two adductors pass the femoral artery and vein.

Structure.—One entire fleshy mass superiorly, split into two portions inferiorly, which at their insertions into the bone manifest tendinous fibres. Their surfaces exhibit aponeurotic patches and stripes.

Action.—Will be considered with the next muscle.

ADDUCTOR MAGNUS.—*Ischio-tibialis.*

Situation.—Postero-internal part of the haunch and thigh; forming the prominence behind, termed "the *point* of the quarter."

Figure.—Irregular. Superior extremity, narrow, pointed, and curved, from which it becomes broad, thick, and afterwards elongated. The posterior border is thick; the anterior is thin.

Attachment.—Superiorly, to the spine of the sacrum and tuberosity of the ischium; inferiorly, to the lower third of the

inner part of the body of the os femoris, to the internal condyle of that bone, and to the inner part of the head of the tibia.

Relations.—Posteriorly and externally, with the faschia and skin; internally, with the biceps abductor and heads of the gastrocnemii; anteriorly, with the gracilis.

Direction.—Longitudinal; inclining forwards in a curve.

Structure.—Entirely fleshy, with the exception of the extremities. The upper extremity is prolonged as high as the sacrum by means of aponeurosis, which forms part of the faschia lata. The inferior extremity is affixed to the condyle by a strong flattened tendon.

Action.—That of the three adductors is to extend the os femoris upon the pelvis; so that they are opponents to the psoas magnus and iliacus, which flex the haunch: they are also powerful adductors of the whole limb. The great adductor will, moreover, assist in bending the thigh, and will rotate it inwards a little.

[To be continued.]

Communications and Cases.

Ars veterinaria post medicinam secunda est.—VEGETIUS.

THE ART OF HORSE-SHOEING SIMPLIFIED, AND UNFETTERED;

OR THE BENEFIT OF THE IRON DEFENCE WITHOUT THE BANE, BY AN IMPROVED METHOD OF NAILING.

By MR. JAMES TURNER, *V. S.*, 311, *Regent Street, London.*

[Read at the Veterinary Medical Society, Feb. 9, 1831.]

Gentlemen,

BY the heading of this paper you will perceive that I am about to refer to two former papers of mine, on Side-nailed Shoeing, published in the July and September numbers of THE VETERINARIAN for 1829.

Having nothing to suggest on the method of shoeing now in common use in this metropolis, I shall not occupy your time by the details of a subject with which we are all so familiarized, but propose forthwith to submit to your consideration a variety of advantages accruing from the new unfettered system of shoe-

ing by *side-nailing:* but I fear you will accuse me of being somewhat touched with enthusiasm, on my venturing the prediction of two events; first, that it will very shortly be generally practised throughout these kingdoms; secondly, its beneficial effects will become so manifest, even to the most prejudiced eye, that it will be hailed as a new æra in veterinary history, or as the epoch of the emancipation of the art of horse-shoeing.

Shortly after the publication in THE VETERINARIAN of my exposé on shoeing, I was assailed, in no very measured terms, by the relatives of Mr. Bracy Clark: to these dutiful advocates of that author I instantly replied, as most of you are aware.

Having been called upon by them to avow from whom I derived the knowledge of the principle of elasticity or expansion of the foot of the horse, and secondly, of the injurious effects of the continued application of iron and nails, in impeding or restraining the natural expansion of the hoof, I answer, that on both these points I derived my information from the same source which enlightened Mr. Bracy Clark himself; viz. a work which is sufficiently old to have become the common property of us all,—I mean on the *Mechanism of the Horse's Foot, with its natural spring explained, published by Strickland Freeman, Esq.* as long ago as 1796, several years prior to Mr. Bracy Clark's first publication on the foot. It was Mr. Freeman, not Mr. Bracy Clark, who first explained these great truths, so as to render them intelligible to others, as the following extracts amply testify. However, as the last September number of THE VETERINARIAN contains an impartial review by its Editors of the claims of Mr. Bracy Clark to the discovery of the expansion of the horse's foot, I shall merely advert to one more passage in Mr. Freeman's work, which is unnoticed by the Editors of THE VETERINARIAN, but important, in case Mr. Clark should attempt to argue that Mr. Freeman's views of the expansive principle was *limited*, like those of his predecessors, to the heels only, instead of the entire horny box participating in the expansion. A short sentence at page 3, and which I am astonished should have escaped the eyes of the Reviewers, sets this matter for ever at rest: "The hoof of the fore foot of the horse produces an elasticity *continued from the quarters to the points of the toe.*"

Now, with regard to the second point, the *nailed fetter*, I am more personally concerned; and on which the Editors of THE VETERINARIAN have been as yet silent. Mr. Freeman, at page 81, remarks on the absolute necessity there is of putting on plate shoes when an exact trial is required between race-

horses; and thus acutely observes—"For this, I think, there can be no other reason than the increase of spring which is gained by the *additional power of expansion given to his feet, by leaving the heels entirely unconfined.*" In the next leaf but one, this unpretending discoverer is content to disclose to us the grand secret quietly. These few plain words of his will suffice; viz. "Upon examining race-horses' shoes, which had formerly been used, I found many of them very long, with nine or ten nails in them, and these pretty close together, and chiefly at the heels; by which there was double the risk of laming the horses in shoeing, and *double the tendency to impede their going, by the heels being bound so as to prevent their spring.*"

I am, however, free to confess, that I think Mr. Bracy Clark's writings, which relate to the anatomical structure and functions of the horse's foot, will amply repay the student for his time in reading them again and again; but with regard to this gentleman's views of the pathology of that organ, I am completely at issue with him.

These points of difference between us I shall endeavour to explain, at a future opportunity, in another paper, which will embrace the general diseases and accidents to which the horse's foot is liable.

I have now a few observations to offer in illustration of the baneful effects of iron and nails upon the elastic foot of the horse. In the discussion which followed my two papers on the Nature of the Navicular Joint Disease, its Causes, Symptoms, and Treatment, it will be remembered by many gentlemen present, that I proved to demonstration a pathological fact, which was doubted by most of the members then present; by some most strenuously denied, and satisfaction or ocular demonstration demanded: of course, this mandate was instantly obeyed; and on unsheathing the weapons *several diseased contracted feet appeared*, and in contrasting them with healthy, open feet, I satisfactorily proved to a numerous meeting of this Society, an unnatural position or *elevation of the coffin bone within the hoof.* Assured of the frequency of the occurrence of this altered position of the foot bone in feet which had been shod, and particularly with those horses in which the ordinary precautions for preserving the elasticity of the horn, through caprice or neglect, had been omitted, I am led from these data to the following deductions: 1st, That the common method of affixing the shoe by nailing to both sides of the hoof has an immediate tendency to destroy *the equilibrium or just balance of the weight when conveyed to the hoof.*

The hundreds of elastic laminæ or plates which surround the

coffin bone, in conjunction with a corresponding number of horny laminæ lining the crust, are known to be the sustainers of the superincumbent weight in the unshod natural foot, by forming a sort of dove-tailed union of immense strength. These numerous elastic springs elongate under the impression of the weight in direct ratio to the momentum or force, and which is accompanied with a corresponding relaxation or yielding of the horny box throughout at the same instant; by which concussion to the foot is obviated, and the animal himself preserved from jar. On the other hand, we will suppose a three-year old colt, and, to avoid extremes, say about the hackney size, three parts bred, with fair formed limbs, and sound hoofs of becoming size, neither too flat and low, nor too upright and strong, to be well shod in the ordinary way for the first time, and with a seated shoe of equal thickness toe and heels, secured by eight nails, four on each side or quarter, as usual. From the very first moment that this animal steps out of the forge upon the new surface interposed between his foot and the ground, his tread becomes uneven, although the foreign body which is appended to the foot is as level as a die. Now the elastic laminæ also sustain the weight in this fresh shod colt, the impression of which has a tendency to elongate the laminæ to the same extent; but no, the fetter is upon the foot, and the best formed shoe that the art of man can devise, if nailed to both sides and quarters of the hoof, according to the mode in general use, will, from that very hour, *limit*, though it cannot altogether deprive the laminæ of their elongation. The laminæ covering the anterior and lateral portion of the coffin bone, will, on the instant, suffer some deprivation of function, just barely sufficient to disturb the harmony of the mechanism. The horny sole, however, notwithstanding the rigidity of the shoe and nails, will continue to descend in *part*, and will yield to the impression of weight and force united. It is this *partial* or *imperfect* descent of the coffin bone and horny sole to which I am anxious to draw your attention. It is quite obvious that the unshod horse in a state of nature exercises equally the whole five hundred laminæ or elastic springs, by their elongation the coffin bone descends within the crust, under the impression of weight, from which pressure on the horny sole its arch sinks, and spreads uniformly in all directions, *toe as much as heel*, whilst every portion of the coffin bone which is in contact with the wall or crust also assists in dilating the base of the foot, and expanding the toe as well as the heels. The weight being removed, all these parts, by virtue of their own elasticity, instantly return to their former position, in readiness for renewed action; and undoubtedly the

elasticity of the crust, the flexibility of the sole, frogs, and bars, together with the expanded form of foot, are mainly preserved by this mechanical up and down motion, which, it should be remembered, with a horse left in his natural state is almost perpetual.

From the moment the colt is shod and nailed in the general way, on both sides, just so much of the coffin bone as is embraced by the portion of crust or wall which has received the nails, is limited in its descent, and a corresponding number of the elastic laminæ have their action also curtailed; but daily experience shews their office is not altogether suspended, even by the most gross shoeing; but the iron and nails together prove the most rigid fetter, in proportion as each nail has its antagonist immediately opposite, on the other quarter of the foot. The consequences of this innovation on nature are these: at no very distant period from the first shoeing, the sensible and horny laminæ become contracted; but as they remain entire in their organization, no pain ensues, the sole gradually becomes preternaturally arched, and the capacity of the horny box is by so much diminished; but yet this is not generally attended with pain, for nature as gradually adapts herself by her own resources to the change; the coffin bone actually grows to the altered shape of the hoof by absorption and deposit; and thus is the fetter repeated month after month; and perhaps years pass away before actual lameness is established, though in too many instances the reverse is the case. Every individual horse thus shod is exposed to one of the principal predisposing causes of lameness, by the tendency it has, in conjunction with other causes, *to elevate the coffin bone within the hoof*, from uniting the action of these highly elastic springs, and also favouring that protrusion of the frog within the foot, before described: the ravages which succeed to this state of the organ, should the navicular joint happen to be bruised in its sudden descent against these deformed and inflexible parts below, I need not now dwell upon; but with respect to the navicular joint lameness, I beg to refer you to my papers on that most formidable and prevalent disease. Hunting horses should perhaps be exceptions to this method of nailing, from their known liability to cast their shoes, even when nailed all round; and at my first view into this matter, I did think that horses with flat feet and low weak heels would also prove exceptions; but experience justifies me in stating, that there are many feet of this description much improved by the same plan, observing this slight difference, viz. the insertion of nine instead of eight nails, and the extra nail to be driven towards the inside quarter.

Gentlemen, notwithstanding the profound respect which I entertain for Mr. Coleman, viewing him as a teacher of the veterinary art, unequalled perhaps in Europe, I have occasion to differ in opinion with this high authority, respecting the descent of the sole. Mr. C. lays great stress, both in his Treatise on the Foot and in his Lectures, on the difference in the degree of descent of various parts of the sole, ascribing very great movement to that portion of sole towards the heel or seat of corn; whilst he contends there is little or no descent of sole towards the toe. Hence it appears, that Mr. Coleman's theory of the yielding of the coffin bone obliquely *backwards* and downwards, the descent of the sole principally towards the heels, and expansion of the quarters instead of the entire organ, is so accommodating to the present pernicious mode of nailing or fettering the foot on both sides, that I fear the Royal Veterinary College will be the last to admit the new system of side-nailing.

My brother, Mr. Thomas Turner, of Croydon, has practised this new unfettered plan of shoeing to a great extent; and I have his authority for stating, that the owners of such horses and persons concerned have extolled the system in raptures.

There is only one drawback or alloy, and never can be but one; but that is of an appalling kind, particularly in these hard times; viz. it will cut off our supply of best patients, by the *prevention* of lameness: but patriotism should ever prevail.

I feel that as much might be urged in favour of a radical reform in the shoeing art as would usefully occupy the attention of the Society for half a session; but for the present I shall conclude my paper with a few remarks on the mechanical execution of the plan I have recommended. Now it fortunately happens, that next in importance to the principle itself, is the simplicity of its practical application. I need not remind you, that all the inventive faculties of Mr. Bracy Clark and others have been taxed for a series of years, and have contributed ingenious contrivances, by which the shoe yields to the foot; most of them admirable in principle, but incompatible with practice. It is now quite obvious that their mistake, together with a prodigious sacrifice of valuable time, are owing to the complexity of their efforts in making the iron shoe to spread with the foot, which is altogether useless and uncalled for, as the foot can dilate with much less embarrassment by itself, the ordinary shoe being affixed, except with the omission of the nails in the inside quarter.

When I say the ordinary or common shoe, I mean that well-wrought piece of iron commonly applied in the principal forges

in London and its vicinity, under the appellation of *the seated shoe*, of equal thickness toe and heel. The flat margin of the foot surface of this shoe, on which the crust rests, should be strictly level, particularly on the inside quarter, as any burr or edge would tend to impede the expansion of the hoof. Clips, judiciously employed, are important auxiliaries to this mode of nailing: in fact, they are indispensable; but two only are necessary to each shoe; the clip in front I prefer in the centre of the shoe, rather than the inside toe; the other on the outside quarter, immediately anterior to the heel nail. The number of nails not to be less than eight, nor to exceed nine, and to be thus disposed of; six in the outside quarter and toe of the foot, and two in the inside toe: no nail-hole to be punched immediately in the centre of the toe of the shoe, thereby avoiding any inconvenience which might arise from the joint pressure of the clip and nail at this part; but the first nail-hole to be punched close to it, at the outside toe; and the remaining five as far distant from each other as possible, without the last nail approaching nearer the outside heel than is consistent with the safety of its insertion; the first nail in the inside toe to be punched full an inch from the inside edge of the clip.

In regard to *the paring of the soles* with this method of shoeing, I seldom deviate from the usual mode with those horses which are old enough to have been shod several years; but with colts, and young horses recently brought into work, I am just now prosecuting some experiments, not yet concluded, but which have already afforded me good grounds for hoping that the shoeing art will admit of a still further simplification by the side-nailing.

In the experiments in question with the colts' feet, I never suffer the hoofs to exceed *three weeks' growth* without removing the shoes, and moderately shortening the toes with the rasp, and slightly lowering the crust with the same instrument; but as to a drawing-knife, or knife of any description, their hoofs have not yet experienced either the use or abuse of any such instruments. One end of the rasp has been ground to a blunt chisel edge, with which a few flakes of sole have occasionally been lifted off, and the colts have, as yet, gone on well in work for several months. Their frogs have never yet suffered any diminution, except from natural detrition in meeting the ground, or other hard bodies. The importance of this improved system of shoeing in racing establishments, among the two-year-old candidates in particular, must, I conceive, prove above all comment.

From attentively watching the feet of young horses which

have never been shod by any method except the side-nailing, I have had the satisfaction of observing one circumstance, which certainly I did flatter myself would result from it, which is, the *capability of the horny sole exfoliating of itself*, as in the unshod foot, thereby preserving its thinness and flexibility, instead of becoming morbidly thick and strong.

This I conceive is attributable to the unrestrained motion of the sole, which the improved shoeing permits of. In throwing out these additional hints with respect to the use of the drawing knife being superseded in *colts'* feet, I shall conclude, gentlemen, by begging you to remember, that I do not pledge myself to shew that it ought to be discarded; but I have hazarded thus much to induce the profession at large to extend the inquiry into this interesting subject.

MR. YOUATT'S INTRODUCTORY LECTURE AT THE UNIVERSITY OF LONDON, Feb. 2, 1831.

Gentlemen,

Having obtained permission from the Council to deliver a course of veterinary lectures in this University, and being thus the first, in the southern parts of the united kingdoms, who has had opportunity to unfold the nature and principles of the veterinary art, and to plead the cause of the veterinary profession in such an institution, you may suppose that I feel no little pride, and much unfeigned anxiety. I am not fearful that I may appear to have directed your attention to a subject unworthy of it, but lest I should be found incompetent to the important task I have undertaken.

However underrated the veterinary profession may yet be in the opinion of the public, and even in that of medical men, it will be my pleasing duty to prove to you, that it is not undeserving of the honour conferred on it in being permitted to rank in a school like this as a legitimate branch of medical and liberal education—that it is closely allied to, or rather a part and portion of, medical science; and identified with the agricultural interests and most valuable resources of the country.

The object of the veterinary surgeon is precisely that of the practitioner of human medicine—to preserve health, to relieve disease, to assuage pain, and to prolong life; and that in beings, not indeed possessed of the high intellectual powers of man, but endowed with all his susceptibility of animal pleasure and pain; with many of his good qualities; his useful servants; his willing slaves; and on whom, by having taken them from their natural

situation and habits, and by many absurd practices, and by too frequent and disgraceful brutality, he has entailed numerous diseases, and a premature death.

The practice of the veterinarian must be founded on the same principles with that of the human surgeon; and his mode of education ought to be the same. An accurate knowledge of the anatomical structure of his patients is as necessary to the one as the other. The veterinary surgeon has, however, not one patient only, the mechanism of whose frame, and the healthy function of whose organs, he must study; he has many—the horse, the ox, the sheep, the swine, the dog. Shall we descend lower in the scale of being? Why not? Have not even inferior animals the susceptibility of corporal sufferance? If we exact their services, and, when our interest requires it, their lives, is it not a duty from which no moral consideration, no false pride can relieve us, to make their lives as happy as we are able? The veterinary surgeon has many patients: their structure different; the functions of their various organs differently discharged; the same diseases differing in character in each of them; the treatment still more different; and, in each, diseases peculiar to that animal; and, in consequence of this, there is required from him, and even more than from the human practitioner, great expense of time and study to fit him for the discharge of the duties of his profession honourably towards his employer and reputably to himself.

And, then, his patients are dumb. They cannot, it is true, impose upon him by false statements of symptoms; but they can relate no symptoms at all; and he is compelled to pay far closer attention than the human practitioner to the varying and too often bewildering indications of disease, and to exercise the greatest degree of tact and discrimination, such as diligent and anxious observation, and long experience, can alone supply, lest he should mistake the nature and character of the disease, and rob his employer and destroy his patient. In addition to this, his blunders are not, like some of the blunders of others, buried with his patient. There is a regular examination of every animal that dies under the veterinarian's hands; and if, as he may readily and pardonably do with his few advantages, he has mistaken the nature or seat of disease, no mercy is shewn towards him, but he is made to suffer in reputation, in mind, and in pocket too.

He has a great deal more to do than the human surgeon has with the influence of food on the production and modification of disease—the mysterious agency of the atmosphere, and the effect of exercise and labour on the frame generally, and, par-

ticularly in the horse, on those overworked portions of it, the lungs and the feet. A knowledge, likewise, of natural history, comparative anatomy, the principles of agriculture, botany, the nutritive and medicinal, the healthful or deleterious properties of every grass, and almost every plant, are indispensable to the perfectly qualified veterinary practitioner.

I mention these things to shew you, that, whatever deficiency there may yet be in the education and acquirements of some veterinarians, and the consequent disrepute into which the profession may have fallen, "it requires," in the language of the immortal John Hunter, in his sketch of the foundation of the Veterinary College, "the sacrifice of as many years to become a skilful veterinarian as a skilful physician. The practice of each is a task sufficient to engage one man's life; the contrary opinion being a portion of that ancient error which, while medicine was regarded as the province of the learned and the few, supposed the veterinary art on a level with the most ordinary capacity. The inferiority of the latter consists not in the arts themselves, but in the relative importance of their respective subjects; and it deserves to be considered as a distinguished science, occupying an eminent station in the scale of natural knowledge."

Few things will contribute more to confirm the assertions, or rather, accomplish the predictions, of this great and good man, the early and strenuous friend of the veterinary art, than this liberal, and I trust I have shewn not injudicious, admission of veterinary anatomy, physiology, and pathology, among the branches of medical and general education.

I would now beg to address myself to medical practitioners and students, and to solicit their attention to the subjects on which these lectures will treat. The anatomy and physiology and diseases of domestic animals are, at least, kindred branches of those studies to which they are compelled to devote many a year. The surgeon must make himself acquainted with the structure of every organ before he can understand its proper healthy function. While he is thus laboriously employed, will it be no relaxation, no pleasure, to trace the structure of the same organs in the animals that are daily presenting themselves to his notice? Will not the difference of structure in them, while it interests him in the examination, indelibly imprint on his mind the peculiarity of structure in the human being? And while, emerging from anatomy, he proceeds to tread the delightful paths of physiology, and observes the beautiful adaptation of structure in the organs of the human being to the functions they are destined to perform, will any relaxation from severer

study be more pleasing, and useful too, than to trace the exquisite adaptation of structure and function to the various purposes to which the inferior animals were destined, and the food by which they are nourished? the structure and the function varying with each variety of purpose, and even with each minute difference of food and situation; and all of them presenting indications of design—all of them perfect—all best adapted for the comfort of the animal, and his usefulness to man. These are delightful regions, in which I should be tempted occasionally to linger, were they not already occupied by the talented professors on Comparative Anatomy and General Physiology, yet over which I must pass, although rapidly; enabled sometimes, perhaps, from the intimate acquaintance with these animals which many years' practice on them has afforded me, to aid, but not to supersede,—to illustrate, but never designedly to interfere with, the labours of these lecturers.

But, gentlemen, if I pass lightly over these interesting divisions of medical study, I may, at least, linger on that which will be peculiarly my department. The difference of structure and the difference of function are most interesting, I had almost said are alone interesting, when they lead to difference of disease. Our most enlarged views of the mechanism of the different organs are then only comparatively valuable, when they guide us to a comprehensive knowledge of the derangement of these organs generally, and particularly in the human being. It is making an extensive portion of animated nature subservient to our improvement in the most important branch of medical science, the healing art.

The medical man, in the course of his practice, will occasionally be questioned, if not, properly speaking, consulted, with regard to the diseases of domestic animals. What answer shall he give without compromising himself, if he is unacquainted with the strangely varying characters which the same disease assumes in different animals; the strangely different means of accomplishing the same indications of cure; and the strangely different effects of the same medicines. If he is at home here, credit will be given him for skill in the practice of human medicine; but if he blunders here, he will, to a certain degree, compromise his reputation as a medical man. If he recommends an inert medicine, as rhubarb, or jalap, or squills; or one that, although mild and effective in the human being, is dangerous in the horse, as castor oil, he will find himself in a dilemma from which he will not be able easily to extricate himself.

I cannot mean to give offence,—my present purpose must be to conciliate,—but I am compelled to say, that I know no class of

persons so ignorant of the diseases of quadrupeds, and the method of treating them, as medical men; because they think that they have only to enlarge the dose of any medicine, in order to produce in the quadruped the effect which they observe in the human being; and because they are misled by analogy, a conclusive mode of reasoning when admissible, but the question of its admissibility being very hard to decide, and depending on a thousand circumstances of which the surgeon is not aware.

A knowledge of the veterinary materia medica will prevent many unsatisfactory, cruel, and disgraceful experiments on various animals. When I know that twelve drachms of corrosive sublimate may be given to the sheep, and eighteen drachms to the ox, without the slightest effect, and yet a few grains sprinkled on a wound will destroy either of them; that three drachms of opium in infusion, and which being thus given, would enter into the true stomach, will produce no narcotic effect—no effect whatever on the sheep; that senna will destroy the sheep by inflammation, but will not purge; that two ounces of aloes will destroy the same animal, and without purging; that a fourth of a grain of emetic tartar will vomit, while a drachm of aloes will scarcely purge the smallest dog, and that scarcely any quantity of opium will destroy him, I can have no faith in the effect of poisons, or of any medicaments on these animals as referable to human practice; and I should reprobate a long list of recorded experiments as inconclusive, indefensible, and barbarous.

There is one point to which I would particularly allude, and in which veterinary science would be of immense importance to the medical man: it has reference to a malady whose progress no skill has been yet able to arrest, and which is the opprobrium of the veterinary art—I mean rabies—hydrophobia. This is a disease, however, which may be prevented, although not cured; but the mode of prevention may be torturing to the patient, and even fatal to the future usefulness of the patient. I will suppose that the father of a large family has been severely bitten by a dog under suspicious circumstances. It is a lacerated wound—it is impossible to cut it out—it is almost impossible to bottom it with the caustic. Amputation must be resorted to if any thing be done; and amputation of a limb that will prevent him from earning his future livelihood, or supporting a family dearer to him than himself; and, if the operation be not performed, the most dreadful of all deaths may ensue. A surgeon is consulted: the family are surrounding him, watching every varying expression of his countenance, and awaiting with unspeakable anxiety his decision. That depends on the nature of the disease in the animal by which he was bitten. How is that to be ascertained? What does he know about it? Perhaps he has never seen a mad

dog; or he has had no opportunity of fairly studying the character of this most protean of all diseases in the animal in which it originates. He that has human feelings can appreciate the distress of the practitioner placed in such a situation; a distress scarcely less than that of the relatives of the patient. If these lectures were valuable in no other point of view than as unfolding the history, characteristic symptoms, and post-mortem appearances of this dreadful disease, they would not be delivered altogether in vain.

To the veterinary pupil,—to whom I owe every obligation—whose kind and marked attention to similar lectures in an humbler theatre, has cheered me under many a disadvantage, and much open, and more secret opposition, and perhaps excited and nourished higher views and purposes, and whose uniform propriety of behaviour I will gratefully, proudly acknowledge even here, and before such an assembly, for such pupils would not disgrace even this institution—to the veterinary pupil I will only say, that these lectures will, as heretofore, embrace the anatomy and diseases of all his patients. This is a point of immense importance to him; for the diseases of domestic animals are as different in each as is their conformation, and the appliances and modes of treatment are as different; and no study, however perfect, of the horse, will prepare for practice on the maladies of other domestic animals. Three grains of corrosive sublimate will destroy any dog; ten are often given to the horse as a tonic, and eighteen drachms have been given to the ox without the slightest effect. The smallest portion of emetic tartar will puke a dog; two drachms have been during many successive days given to the horse with good effect; two ounces will only produce a slight diuretic effect on him, and will not produce any effect on the ox. Justice to himself, his employers, and his patients will demand that the veterinary surgeon shall have studied the veterinary art in all its branches. The elucidation of the veterinary art, fairly and fully and honestly in all its branches, will be the object of the lecturer.

To the man of liberal education, and especially to the proprietor of horses and cattle, these lectures, however imperfectly delivered, will be pregnant with useful instruction. They will lay the foundation for that which his experience must perfect,—a competent knowledge of the exterior of the horse and of cattle; those points, those conformations of different parts, on which the beauty and the utility of the animal materially depend. Although practice alone, and the long-formed habit of being with them, and studying them, and trying them, can form the good judge of the horse or of cattle, yet there are rules, proportions, positions, conformations, and connexions, which are easily understood, which will immediately guide to a considerable extent, and on which

an accurate, and useful, and profitable knowledge of these animals will be easily built. From ignorance of some first principles, how many of my hearers have suffered in their comfort, their pocket, and their pride!

Lectures like these must be interesting, as enabling the owner of the horse and of cattle to overlook his own stable and farm,—and to rid himself of that most unnatural and intolerable of all nuisances, the tyranny of the bailiff or the groom; and to be master of that portion of his establishment with which his pleasure and his interest are so much concerned. I have heard gentlemen of rank, and influence, and talent, confess that they dared not do what they pleased in their own stables. They have blushed at the dishonourable and abject slavery to which they were reduced, but they had not courage to throw off the yoke. Tyranny here, as every where else, was founded on ignorance. The master knew not the proper management of the stable, or the qualities, or the diseases of the horse—he was fearful of committing himself, and shrunk from the sneer of his menial.

On this ignorance of the master has been founded a system of stable management, absurd, cruel, and destructive to the animal, and unnecessarily expensive to the owner. I will, however, do those who have the management of the stable and the farm the justice to say, that many of them have, in the ventilation of the stable, and in the comparative disuse of over-training, over-physicking, and over-feeding, adopted a mode of treatment less injurious to the animal, and more consistent with the interest of the master: but they who have penetrated into the mystery of the stable and the farm, will still recognise many a relic of ignorance and barbarism; and, after all, there is, in the best conducted establishment, nothing like the superintendence of the master; while that, to be effective and profitable, must be founded on knowledge of the matter.

But I will place the utility of these lectures on a broader basis. Ours is an agricultural as well as a commercial country. Its staple riches are its soil, and the productions of its soil. It is more decidedly an agricultural country than others that have scarcely a vestige of commerce. There are in Great Britain twenty-nine more horses to every thousand inhabitants than in France, and nearly double the number of sheep and oxen.

In a statistical account of England and Wales by Geoffrey King, and published in 1696, when the population was supposed to be only 5,500,000, and the whole rental of the kingdom £12,000,000, the number of oxen was calculated at 4,500,000, and of sheep at 11,000,000; and their value, averaged at 2*d.* per lb, was more than £13,000,000 sterling; but now that our population is more than doubled, and the value of money so much increased, we

may calculate the number of sheep and oxen, and the money they are worth, at a much higher rate; at a rate so much higher, that I dare not state it without giving you the proofs.

There are sold at Smithfield market in the course of a year, 160,000 beasts, 18,000 calves, 1,200,000 sheep, and 36,000 pigs; which, averaging the beasts at £18 each, the calves at £2, the sheep at £1..10*s*., and the pigs at £2, will give a sum total of more than £5,000,000; exclusive of the dead-market—the carcasses which are sent up from various parts of the country—and which amount to a considerable sum.

That I may not appear to exaggerate the gross amount, I will suppose that stock to the amount of £5,000,000 is annually sold in Smithfield; then I will suppose a tenth part of the meat consumed in England and Wales to find its way to the markets of the metropolis; and consequently we have an annual consumption of animal food equal to £50,000,000. I farther calculate, that one-fourth of the stock is annually destroyed, which gives us a sum total of £200,000,000 sterling as the value of our live cattle.

It has farther been computed, that more than a tenth part of the sheep and lambs die annually of disease. More than 2,000,000 of sheep perished of the rot during the last winter. More than a fifteenth part of neat cattle are also lost by the blood, redwater, dropping after calving, the hoove, and rottenness. I will take the whole at a fifteenth part; and I have the startling sum of more than thirteen millions of money annually lost to the country through the diseases of domestic animals.

Is there no provision against this? Has the legislature never interfered to lessen this waste of national wealth? Have the landed proprietors, the chief owners of this valuable portion of our island's wealth, formed themselves into no societies, and founded no seminaries for the examination of the cause of all this, and for the education of veterinary practitioners who shall devote their talents and their time to the study of the diseases of sheep and cattle? No. A principle of worse than Turkish fatalism seems to have oppressed and paralysed the agriculturist. He is accustomed to these losses: he makes up his mind that he must bear them; and he takes no step to guard against them.

The agricultural societies now and then offer premiums for the best essays on the treatment of certain diseases; otherwise they are employed, usefully and profitably certainly, in discussing the best way of improving the breed of cattle, or improving their lands; but the diseases of cattle and sheep are subjects which they do not understand; they are evils against which they think it is of no avail to struggle; and things go on just as they will. The loss of agricultural property by the mortality of cattle and sheep has two grand sources, and I know not which is the worst,

the ignorance and obstinacy of the menial, and the ignorance and supineness of the owner.

Are there no treatises on the diseases of cattle? No; not one of authority, except the short notices of my friend, Mr. Blaine; because there has hitherto been no school (I except with much satisfaction Mr. Dick's excellent establishment at Edinburgh, in which the diseases of all domestic animals are considered and taught: the Highland Society has done itself much credit by establishing and patronising his school, and has set a laudable example to other societies: I likewise except the newly-established professorship of veterinary medicine and surgery at Glasgow; and I exult in that exception); I say there has been yet no school in which the veterinary art was taught in all its branches. There are no treatises to be depended upon, because there has been no school; and our veterinary surgeons have not had sufficient courage to write on subjects in which they were not systematically instructed, and their imperfect knowledge of which they have slowly and painfully derived from their own experience and practice.

There are no medical books which profess to treat on these matters; but there are books by druggists, recommending, of course, plenty of their own commodities. I will give you one or two extracts, and you shall judge of their value; and those extracts principally taken from a very excellent writer on the general treatment of cattle. Mr. Knowlson explains the nature of redwater as an obstruction of the gall, "not only in the pipes that go into the intestines, but also in the pipes that lead through the kidneys into the bladder;" and caused sometimes by "bad water, for when they (the cattle) come to good, they take too freely of it, which overloads the bowels, and forces them against the midriff, bringing too much weight in the vessels, which causes them to break:" and Mr. Parkinson recommends, as a frequent cure for this complaint, "a frog with pig's dung;" and as an infallible one, "two or three handfuls of stinging-nettles boiled, and to the liquor added a pint of common salt, put into a quart bottle filled with chamberlye, and shaken well:" also "the sod on which an ox with foul in the foot had trodden, turned sward-side downward, or hung in the hedge in that position," as a cure for that complaint; and "a green willow twig, twisted and put round the neck of a sheep," as a cure for the green skit.

Agricultural property to the amount of thirteen millions of money is annually lost. I may, then, say, that these lectures, with all their imperfections, cannot fail of being interesting and valuable.

Do I profess to be able to unfold effectual remedies for many of these pests of our domestic quadrupeds? Not so. Some little light I may possibly be able to throw on the subject. At

all events, however, I shall have directed the attention of my pupils to these important topics. I shall have obtained some zealous, and, possibly, successful, fellow-labourers in this neglected branch of medical science, and of paramount national interest: and, at no great distance of time, the ravages of these diseases may be somewhat restrained. Diligent and scientific inquiry may effect a portion of that good, with respect to cattle, which the improvement of the veterinary art has effected in the health and value of the horse. Grease and glanders, formerly the frequent inhabitants of almost every stable, are comparatively unknown. Where twenty cases existed twenty years ago, not one is now observed. If the same improvement could be made (and why should it not?) in the treatment of cattle; or if only one in four could be saved from death, what an important advantage would be gained. If the attention of agricultural societies, or, perchance, that of government, should be directed to an object that should long ago have occupied their most serious consideration, these lectures will not have been delivered in vain.

The horse will be the prominent object of our attention, not so much as, in the aggregate, the most valuable animal, but as oftenest coming under our notice. As we pass over the different systems into which our lectures will be best divided,—the sensorial,—the circulatory,—the respiratory,—the digestive, &c. the anatomy and physiology, and diseases of the various parts and organs will be first considered with reference to him; and then the difference of structure and function and disease in other domestic animals. The character of the lectures will depend much on the kind of class I may have the good fortune to form: sufficiently scientific, I trust, to satisfy the veterinary and medical student, yet not so abstruse or technical as to cease to interest the general enquirer.

Part of my journey will be over hitherto untrodden ground. I shall have no resources but such as I may have derived from my own little practice and experience: my pupils will not forget this; nor will they be surprised or offended if I occasionally should betray a somewhat imperfect knowledge of my subject. I will guide them as far as I can; but if I am honest to them and to myself, I must not attempt to teach that which I do not know. The experience of others will be gradually added to mine, and some mysterious portions of our subject will be gradually better understood. Until then they will deal leniently with this first attempt,—they will pardon occasional imperfections for the sake of the topics now first brought before them. Give me, gentlemen, your candid attention and kind support. I will find zeal and industry; and then, possibly, neither you, nor the University, nor the lecturer, will have occasion to regret our periodical meetings.

THE HISTORY AND ORIGINAL CONSTITUTION OF THE VETERINARY COLLEGE.

[Continued from p. 104.]

May 17.—It was resolved to provide a proper place for the professor's dissections and lectures.

May 24.—A general meeting was held, the college consisting of eighty-six members, when it was resolved to advertise for premises for the purposes of the college. The sum of £100 was fixed as the salary of the professor, and the same sum for the secretary.

July 19.—A special general meeting was held, when it was resolved, that in order to procure the attendance of a sufficient number of members to transact business, the meetings should be open to the attendance of every member of the college; no business having been done since the former general meeting. The addition of members to the college was reported to be thirty-two, making in the whole 118.

July 26.—The secretary was directed to transmit the proposed regulations of the college to the army agents, and to request their forwarding them to the regiments.

August 9.—The secretary was directed to transmit the proposed regulations to the physicians and eminent surgical practitioners in London.

September 6.—A general meeting was held, when the number of members was reported to be 133. An offer was made by Messrs. Kirkman and Hendy of a parcel of land at Camden Town, the property of Lord Camden, for the purposes of the college, for a term of ninety-nine years; when it was resolved, that the committee should meet on the 13th instant, to survey the ground offered.—The secretary reported, that sixty-three bankers and other gentlemen, in different parts of the kingdom, had accepted the office of receivers for the college.

September 13.—At the meeting of the committee, at Pancras, for the purpose of viewing the ground offered by Messrs. Kirkman and Hendy, it was resolved to be eligible for the purposes of the college; and a house, with convenient offices, adjoining to the above-mentioned ground, was now engaged as a temporary residence for the professor.

September 20.—A general meeting was held. The number of members was reported to be 138. It was resolved to agree with Messrs. Kirkman and Hendy for the ground proposed by them, belonging to Lord Camden. The secretary was directed to

apply to the president, vice-presidents, and directors, to request five or more of them to be trustees for accepting a lease of the ground from Lord Camden.

September 27.—Letters were received from nine of the above gentlemen, approving of the situation for the college, and consenting to become trustees. Mr. Burton was requested, in conjunction with Mr. Sain Bel, to prepare and lay before a future meeting, a plan of a building for the college; and Mr. Burton was also requested to superintend any temporary erection or alteration in the premises engaged for the college.

October 4.—An advertisement was ordered to be inserted in the papers, containing the terms on which the professor's lectures would be delivered at the college.

November 1.—The secretary was directed to send abstracts of the proposed regulations of the college to the proprietors of the stage coaches.—An advertisement was ordered to be inserted in the papers, directing persons desirous of becoming resident pupils to apply to the committee.

December 6.—A general meeting was held; the number of members was reported to be 179. Mr. Burton produced a plan for the college. It was resolved, that a collector to the college should be chosen. A letter from Dr. J. Corrie was read, offering his services to the college, during his stay in the East Indies, in collecting information on the veterinary science; when, on the motion of Mr. J. Hunter, he was elected an honorary and corresponding member.

December 13.—It was resolved, that peers, members of parliament, and ladies, should be allowed to vote by proxy at all elections. The professor informed the committee that he should commence his lectures on the 4th of January.

January 3, 1792.—A general meeting was held; the number of members was reported to be 204. Mr. Reuben Smith was chosen collector. At this time there were four pupils in the college.

January 10.—Mr. Arthur Young and Mr. Marshall were elected honorary and corresponding members.

February 14.—Mr. Baynes, Mr. Penn, and Mr. Stone, were appointed a committee to examine the accounts, and pay all demands on the college. On account of the great number of applications made to the professor to receive diseased horses, it was directed to be advertised, that there were not conveniences for the purpose; but that, as soon as stables were erected, proper notice would be given.

February 21.—A general meeting was held; the number of members was reported to be 233. It was resolved, that the

proposed regulations should be sent to every member, with a request that such alterations as might appear to be necessary should be sent to the secretary. Regulations for the interior discipline of the college were read and approved.

March 1.—A letter from Sir William Fordyce was read, inclosing one from the Earl of Macclesfield, on the rot in sheep.

March 22.—It was resolved, that temporary stabling for the reception of fifty horses, and a forge house, should be forthwith erected; and that such horses only should be received whose disorders were not contagious. That two or more young men should be placed at the forge, as working pupils. Mr. Burton was desired to prepare a plan and estimate for the building of fifty stalls and a forge-house.

March 27.—It was resolved to agree with Messrs. Kirkman and Hendy for an additional piece of ground adjoining to the former parcel engaged, and on the same terms, making together about six acres.

April 5.—Mr. Burton produced a plan and estimate for the building. A proposal was received from Mr. Barnard, proprietor of the premises now occupied by the college, for letting them on lease, when it was resolved to agree with him. A proposal was received from Mr. Warner, respecting the making bricks for the college, and agreed to. It was resolved, that on any contract being made by the college, the contractors should give security for the performance of their agreements. It was resolved to advertise for proposals from builders for erecting stables, &c. to be received on Thursday the 19th instant.

It appearing necessary, from the numerous applications made to the professor for the admission of diseased horses, that stables should be immediately built, with other necessary conveniences; and as the present funds of the college would not enable the committee to proceed on so extensive a scale as the importance of the institution demanded, it was resolved, that the friends of the institution should be requested to advance money on interest, at three per cent. per annum—the principal to be repaid as soon as the funds of the college were found sufficient for that purpose; and that nine subscribers should be trustees.

April 26.—The committee having received proposals from six builders, they agreed with Messrs. Howell and Russell to build the stables for the sum of £2850.—Mr. Burton was desired to order the necessary implements for the forge. A memorial was presented from the professor, stating that he had been calumniated both with respect to his private character and his professional abilities, and requesting committees might be immediately appointed to inquire and report on the business: when it

was resolved, that Mr. John Hunter, and seventeen other professional gentlemen, should, in compliance with the memorial, be requested to examine the professor as to his abilities for the office of veterinary professor, and report their opinion to a general meeting. It was also resolved, that the Earl of Morton, and twelve other gentlemen, be requested to inquire into the complaints stated, and report their opinion to a general meeting; and that the officers should furnish both committees with such papers as they should have in their possession, and which should be called for.

May 10.—It was resolved, that a special general meeting should be held on the 17th instant, to receive the reports of the committees appointed on the 26th of April.

May 17.—A special general meeting was held. The number of members was reported to be 425. The reports from the committees, appointed in consequence of the professor's memorial to inquire into his character and abilities, and the complaints made by him against the secretary, were read, and the following resolutious unanimously agreed to:—

That from the report of the medical committee, consisting of John Hunter, Esq. chairman, Sir George Baker, Bart., Dr. Crawford, Dr. Packwood, Mr. Cline, Mr. Vaux, Mr. Peake, Mr. Home, and Mr. Sheldon, this meeting is satisfied, that Mr. Sain Bel "is perfectly qualified" for the office of veterinary professor in the college.

That this meeting concurs in opinion with the said committee, that it will be necessary, in order to carry on the business of the institution as perfectly as possible, that there should be two professors appointed; and that as soon as the proposed plan for the college is executed, which, from the encouragement already given, it is hoped will be speedily accomplished, the members will avail themselves of the offer made by the committee, and refer the merit of candidates for the second professorship to their investigation.

That from the report of the committee, consisting of the Earl of Morton, chairman, Lord Heathfield, Major General Murray, Mr. Angerstein, Mr. Baker, Mr. Baynes, Sir John Ingleby, Mr. Butt, Mr. W. Baker, and Mr. Walcot, this meeting is perfectly satisfied with the character and conduct of the professor.

It was resolved, that a special general meeting should be held on Friday the 1st of June, for the election of a new secretary (the former having been dismissed): that at the election no person should be admitted to vote who was not then a subscriber.

May 24.—The duty of the secretary was regulated by the committee, and his salary fixed at £150 per annum.

A general meeting was held, when the Duke of Northumberland, Lord Rivers, Lord Morton, Sir T. C. Bunbury, Sir H. Mildmay, Mr. Baynes, Mr. Penn, and Mr. Stone, were appointed trustees for executing the deeds in the leases to be granted by Lord Camden to the college; and any three of them were empowered to act. Also, Lord Heathfield, Lord Kinnaird, General Murray, Mr. Angerstein, Mr. Butt, Mr. J. Baker, Mr. Crane, Mr. Topham, and Mr. Hendy, were appointed trustees for the subscribers to the loan; and any three of them were empowered to act.

The salary of the professor was fixed at £200 per annum.

The meeting then proceeded to the election of officers for the ensuing year, and afterwards dined together. The numbers were declared to be 478.

June 1.—A special general meeting was held, for the purpose of electing a secretary, when Mr. William Mounsher was unanimously chosen.

June 7.—The committee formed regulations for the officers and for the infirmary.

July 5.—The committee resolved to inclose the whole of the premises by walls, Messrs. Kirkman and Hendy having proposed to join in the expense.

July 19.—The surveyor was directed to give orders for building a porter's lodge, building a fence, and also to prepare a plan for the general building.

July 26.—The committee resolved immediately to build lecture and dissecting rooms, and to advertise for proposals from builders for that purpose.

August 2.—The committee agreed with several artificers to erect the necessary buildings. Notice was ordered to be given, that the forge was completed, and would be opened for the reception of horses on the 10th, and regulations were made for that purpose.

August 9.—Regulations were made for the conduct of the porter, and other servants.

August 16.—Cards were ordered to be printed and sent with horses not admitted into the college.

August 30.—The secretary was directed to advertise that the professor's lectures would commence on the 1st of October; and also the several arrangements in the college hitherto adopted.

September 6.—A general meeting was held, when a statement of the accounts was produced, and the medical experimental committee appointed, consisting of Sir George Baker, Sir William Fordyce, Dr. Crawford, Dr. Scott, Mr. J. Hunter, Mr. Cline, and

Mr. Houlston.—It was resolved, that the anniversary meeting should be held on the 18th of February next.

October 11.—The committee resolved, that one of the rooms in the centre of the building be fitted up for the purpose of a temporary dispensary.

October 18.—Mr. Kirkman was appointed to treat with the proprietors of the Hampstead Water-works for supplying the college with water.

October 25.—A letter from the president to Mr. R. Wilson was read, inclosing a draft for £500 as his subscription to the loan.

November 1.—At a meeting of the council, Mr. R. Wilson was appointed solicitor to the college.

November 8.—Mr. Burton reported, that the proprietors of the Hampstead Water-works had agreed to supply the college with water for one year, and then fix a price for a constant supply. Accommodations for the pupils being much wanted, and Mr. Kirkman having offered to accommodate the college with a house adjoining the college premises, for the secretary; it was resolved, that his proposal be accepted, and that the secretary do inhabit the same, as soon as it can be prepared and furnished for that purpose.

November 15.—At a meeting of the council, the price of the keep of horses was fixed, and regulations formed for the infirmary.

December 6.—At a quarterly general meeting, the college accounts were presented.

December 13.—The committee gave orders generally for the providing all kinds of necessaries for the grooms, porters, smiths, &c. &c.

January 1, 1793.—The infirmary was opened for the reception of diseased horses.

February 14.—A general meeting was held, and the regulations for the college were determined upon.

February 18.—A general meeting was held, and the several officers of the college, as also the committees, were elected for the ensuing year. At this time the number of the members of the college was 910; and the number of pupils in the college was 14. The establishment of the college consisted of a professor, a secretary, a collector, the professor's assistant, a porter, three smiths, and five grooms. The number of diseased horses in the infirmary were fifty.

Such have been the origin and progress, and such is the present state of the institution, which, notwithstanding the prejudice of almost every class of men in the kingdom, may be said to have succeeded far beyond the highest expectations of its most

earnest friends. From the foregoing statement, every attentive mind must observe what obstacles may be overcome by industry and perseverance; and that, in this country, the utility and benevolence of an institution need only to be perfectly ascertained, to meet with due attention and encouragement.

The institutors and friends of the Veterinary College presume, that, to insure the public patronage, they have only to state the nature and tendency of the institution; being fully persuaded, that whether it be considered as an object of humanity to animals, or of general utility to the nation, it will excite and receive every degree of attention and support which its intrinsic merit deserves.

[To be continued.]

ON CHRONIC FOOT LAMENESS;

MR. COLEMAN AND MR. BRACY CLARK ON THE FOOT; AND THE ARMY VETERINARY DEPARTMENT.

The acute and more obvious diseases of horses, and the cures of such, are in general more imposing to casual inquirers or lookers-on; nay, not unfrequently to others, from whom a less narrowed scope of observation and reflection might be expected; but the chronic and less obvious, of slower progress and more subtle in cause and effect, should, surely, be in no way less interesting. And of how frequent occurrence are such in horses? Requiring often nice discrimination, and still oftener much patience in treatment, rather than very active measures or remedies, the cure of these should, therefore, be no less gratifying; nor should such be trifled with or given up as hopelessly tedious or irreflective, mostly, of credit. Usually slow of growth, such diseases are equally so of cure. This prelude over, I hasten to the simple history of the following case; for there is no organ more important, and none, unfortunately, more subject to chronic disease, than the foot of the horse; and as I am desirous to usher into the pages of The Veterinarian the detail of some cases of successfully treated chronic foot-lameness, in which I experienced the practical application of an often, in schoolhood, *penned* axiom to stand me in good stead,—" patience and perseverance overcome many difficulties," so I think it may pass as not irrelevant. In a subsequent communication I will be less general or diffuse: I must premise further.

In March 1826, I happened to see a fine-looking slapping dark chesnut horse, *Sir David*, by *Stamford*, out of *Bit-of-Tartan*, very lame, both fores. His owner told me he had been

lame, less or more, for above three years. He was then six. He had been deemed a young one of very high form by his breeder, and looked forward to as promising to become a likely Ledger horse; but when in training, or two year old, he got amiss before, and was obliged to be put off work that year. When again trained, or three year old, he went very queer, and was again necessitated to be laid by. Subsequently he was sold into Ireland, where he was ridden in some capacity or other for a time. I am not, however, pertinently informed of the particulars of his career up to the time I first saw him, saving his having been ever more or less lame, and that the cause, at various times, had been assigned to and treated in sundry places, from his shoulders to his feet. I was then attending the Veterinary College as a pupil, but had been casually called into Scotland for a short period, where I saw him. Mr. Coleman's lectures on the foot, which prove to most so attractive, had particularly interested and biassed my attention. Here, by the way, I may observe, "*tempora mutantur, et nos mutamur in illis*" seems to be a popular motto with some who are ambitious to walk only in their own paths, I suppose, in regard to the views of this organ their lecturer once developed so singularly to their satisfaction; but, for me, I avow myself un-emancipated from my first creed. This horse's legs were particularly clean and fresh: his feet moderately sized, open-heeled, and what would be termed ordinarily good hoofs; and altogether the cause of the lameness seemed very obscure. His owner declared it was seated in the shoulders, past all doubt; his action, however, indicated it should be sought for in the feet. The supposition that a horse might be lame who had, to appearance, a very fine foot, from the latter being too strong, or from having a thick and unyielding sole (he was a very light-shouldered and *topped* horse), induced me to seek for the cause in the foot. The foot was a strong one, and the sole concave and thick; but the frog, though its outward form was good, I found on cutting it to be of a consistence like soft curd. I have seen, however, sound horses with stronger feet; but, taking one thing with another, I assigned this as the origin and cause of the lameness. I was so much struck with him as a high-bred, fine, large horse, that, for the sake of experiment, I bought him; of course, not giving any large *figure*.

I had an outhouse prepared, one half of the floor covered some depth with clay and kept moist, and into this I put the horse. His soles were thinned; the hoofs and quarters rasped; blood extracted from the vessels over the lateral cartilages, and a dose of physic given. A few days afterwards his coronets were blis-

tered. I had now to proceed to London, leaving instructions to attend to his feet, and to repeat the blisters three times within a month; and that during the day leg-bandages should be constantly used, kept wet with vinegar and water. About a month after this I wrote to Mr. Henderson, V.S., Edinburgh, and requested him to go twelve miles to see him, and to introduce setons through his feet, and to write me what he thought of his chance of recovery. At that time his opinion did not prove very cheering; but I said, "patience and perseverance." The setons were kept open for a fortnight, when he was turned into a soft paddock. The blisters were repeated. In June the weather was hot and the ground dry, and he returned to the outhouse, where setons were again passed. In July I once more saw him, when he appeared to me to go better, though he shuffled somewhat, from his feet being thin. I had him shod lightly, interposing leather, with tow and tar, between the shoe and the sole. The great amendment in his action was forthwith apparent. He shortly began to go so well, that I sent him to gentle exercise, preparatory to an essay to train him, which I had determined on. Every care was paid to his feet to keep them cool and easy, and the circulation ordinate in degree (which I had conceived to have been in excess, the arteries in the extremities beat so full), by the constant use of the cold bandages. On the 1st of August he commenced with his work; and though he was rattled a good deal in it to try to get him in any form at all to run at Ayr, in September, he stood it, under this care, uncommonly well. If he shewed a little shy in his action at first, after his gallops, instead of retrograding, he gradually got better and better; and, on a very hasty and meagre allowance of work, he came out at the western meeting in September, for a £50 plate, and ran two very decent two mile heats; so much so, that I continued him in training to run for a gold cup at an October meeting. He went on very well, and only once, after his return from Ayr, gave any symptoms of feet-tenderness. Two days lay by, and a return to the use of the leather, which had not been put on after he was plated, enabled him to go on perfectly sound, and to improve into a very superior horse, to the surprise of those who had formerly known him. But within a few days of his starting to travel to where he was to run, he ran away with the lad who was riding him for exercise, and, pitching over a steep, injured himself so seriously, as to render him useless.

This horse had not been all along exceedingly lame, for he had been much nursed, but always so lame as to render him useless as a race-horse, and unsafe to ride in any way. The issue of the case, after so long a period of unsoundness, has frequently since

encouraged me, with good success, to persevere with chronic cases of foot-lameness, in a situat on where it much abounded.

Before dispatching the above, one or two occurrences have stimulated me to take my pen again, and venture on some rambling remarks, though it is treading on what I am sensible is somewhat debatable ground. But I am in no way tied to any set of opinions or persons, and care not, therefore, to give expression to any sentiments I entertain. I am alike indifferent to being taken for an opponent or a partizan.

Of any *dicta* which are sought to be given to the public as doctrinal, any one is entitled to freely express his opinion; and where a public character has been attacked or canvassed, in any way, every one interested should have an assent or a dissent. Absence from England has made me ignorant, or behind-hand, of much that has been transacting of interest in the profession; and when at leisure I often refer back. I have just been looking over some numbers of a periodical work, now defunct, "The Farrier and Naturalist," and of "The Lancet;" and from them has originated my inclination to say these few words: in the latter, the numbers of which are some four years and upwards old, I have been reading of Mr. Bracy Clark and his doctrines on the horse's foot and shoeing, which I find lauded in opposition to those of Mr. Coleman, whose opinions are critically affected to be palpably and demonstrably erroneous. Now, my views in the treatment of the cases of chronic foot-lameness, which I purpose to narrate in THE VETERINARIAN, prompt me to here hazard a remark or two. Mr. Clark's is a name I have habituated myself to look towards with respect, for he has devoted much time to writing on subjects connected with veterinary science and pursuits; and I am of opinion, that to create even discussion is ever of beneficial consequence. This respect on the one hand, and a consciousness of my own inability clearly to follow him in his expositions, on the other, forbid my attempting to judge of or appreciate his theory; though, speaking generally in regard to Mr. B. Clark's labours, I would incline to say, if erudition or elaborate research, as applicable to veterinary improvement, could ever be termed over-much, I would humbly venture to designate that gentleman's so. I might shrink from the betrayal of ignorance of "Greek or Latin lore," but yet I must say, the *title* he has ushered forth some of his productions with, smacks too much of classical derivation for my fancy, and, to many veterinary readers, would never convey an idea of the subject treated of. This is a great error, in my estimation. Unadorned principles and plain practical facts are grand veterinary desiderata, and

learned disquisition or illustration not so at all, as all veterinary readers possessing only ordinary acquirements will agree with; and I know most coincide with me in the feeling which has led me to introduce these observations here.

I have said I am tied to no person or opinions. As far as I am enabled to judge for myself, I desire to do so. I think every one who seeks to truly know should listen to and try to estimate the arguments advanced in favour of any set of opinions, on any subject in which he is interested; but while I say, hearken to opinion or counsel coming from those more able, more experienced, or senior, I add, there should be no blind devotion. Bring every thing advanced fairly to the test of the reasoning of one's own mind on the one hand, and to the ordeal of one's own practical judgment on the other; and then let every one's "faith be according to his lights." If both criteria bear it out, he will stick to that text. Mr. Coleman's opinions, in reference to the foot and shoeing, have been much commented on, and not a little snarled at by some; and I am neither anxious to examine the what, the why, or the how. They can stand by themselves, for inquiry is open to every one who wishes satisfaction; but that, as delivered by Mr. Coleman, they are concisely and clearly deduced from a chain of evidence that seems to speak proofs at once to moral and physical comprehensions, I believe not many who have heard him will dissent from. That they are, however, plausible in theory, and otherwise unerringly right, I, for one, am not prepared to say; for we know the long received and most established opinions have been overthrown by extraordinary new light in science: but here I am a believer, till some enlightened one springs up to furnish us with yet better grounds for other belief. Let veterinarians take Mr. Coleman's theory on the foot of the horse, and his corrected views of it as applicable to practice, and submit it, as before said, in all candour, to their own unprejudiced examination; let them do the same with other theories we have seen spring up from and follow his; let conviction be neither biassed by any fond individual fancy, nor swayed by private pique or feelings, nor influenced by sinister views or interests; and I would soberly like to hear whose principles, and the practice founded on them, are almost universally adopted and acted on? I need hardly add the conviction I boast; and I have sought to be alone influenced and guided by truth.

The further remarks I thought to make had their source in the same publications already referred to; but I am not sure it were not better I leave them alone. I shall, however, be brief; and only presume to observe, that it is surely much to be deplored, that, within the last few years, what should have

been, if any thing, the honourable, dignified, and straightforward efforts of the profession to advance its welfare and credit, should, in some quarters, have been made the vehicle of personal declamation and invective. The great bulk of the profession must know where, if in any general points, the career of its professor has been open to cavil; and with that I meddle not. But it must also know how unfounded have been the indecorous hints, inuendos, and rumours of private interests and feelings he had to serve and served, as industriously circulated in one or two quarters. The indulgence of this discreditable mode of mingling up the question of alteration or reform in the college, or otherwise, with personalities towards one so assimilated with our credit generally and individually, defeated its own purpose by its self-recoil; and I sincerely trust to see worthy grounds alone taken henceforward, and in all efforts to obtain vantage field for our profession. The patronage of the army, I see, is one thing has been clamoured about. It is more than superogatory to oppose or adduce facts in answer to what are, at best, but emanations from shallow suspicion; but I feel truly indignant at so unworthy aspersions; for I have had opportunity (not agreeably) to know, that any fair basis of claim, not on Mr. Coleman, but on the service, or the profession, has always been attended to by him in preference to private feeling, as reference to not a few regiments of cavalry would verify. I advocate fair play on all hands. The profession does not require to elevate itself in any way at Mr. Coleman's expense, with whom it has been so long and so much identified.

Regarding some recent communications to THE VETERINARIAN, I in no way incline to ascribe any degree of similar feeling or inclination to "An Army Veterinarian," who, in the last Number has commented on "the army department;" and yet, in some way, it gives me an impression that it means to imply, or rather it asserts, that "there's something rotten in the state of Denmark." Now, I cannot exactly see it. He tells us that the commander-in-chief's list is "fed from another list kept by Mr. Coleman, but by no means *regularly* fed by the transmission of the names of those who, having obtained their certificates, were anxious to obtain an army appointment, &c." Undoubtedly this is quite true; and why not so? If the selection of individuals to fill army appointments is vested in Mr. Coleman, would he perform his duty by sending, indiscriminately, the names of all who, having obtained their diploma, choose to apply? Is it so in regard to the appointment of surgeons to the army? Does not the director-general in the medical department exercise a similar discretionary selection in recommending?

In regard to there being "*four* quarters in which one may try his interest or influence with hopes of success," &c. True; and what of it? Though Sir James Mac Gregor on the one hand, and Professor Coleman on the other, are the ordinary channels, still if an individual in either profession, having obtained his certificates of professional qualification, can procure influential recommendations to head quarters for an appointment to the service, he may succeed in obtaining an appointment, independently, of course, of them.

To say that, "were the diploma (such as it ought to be, and without it be which it is a non-entity) a guarantee for the qualification of the applicant, no other attestation of professional abilities would or could ever be sought after," &c. is to throw dust in our eyes while begging a question. Beyond all dispute, the diploma ought to be the attestation of *professional* qualification for an appointment in the army; and it is so: and yet that "a *second* notice of qualification" should be deemed necessary, is neither "absurd," "unjust," or "contradictory," as "any one who runs may read."

Regarding THE VETERINARIAN as the organ of neither individuals nor party in veterinary objects, but the property of all veterinarians, and the ministrix to their honour and weal, and the promoter, in every form, of improvement, I trust the Editors will give these remarks a place.

ALSO AN ARMY VETERINARIAN.

Scotland, Feb. 18, 1831.

MINUTES OF EVIDENCE

BEFORE A COMMITTEE OF THE HOUSE OF COMMONS ON THE BILL TO PREVENT THE SPREADING OF

CANINE MADNESS.

[Concluded from p. 77.]

Alexander Thomson, M.D., called in, and examined.

HAVE you had a case very recently of a child under the disease of hydrophobia?—I have at present under my care a boy, who has been recently bitten by a dog, but has not yet demonstrated any signs of the disease. I was called in to express my opinion regarding the morbid appearances in another case some time since, in which I carefully examined the body of the patient, and also that of the dog by which he was bitten.

Have the goodness to state that case as it occurred to the Committee?—A little boy, about seven years of age, while walking along quietly through Lisson-grove, was suddenly bit by a dog, which rushed out of the gate before a gentleman's

house, no provocation having been given by the child. The part bitten was the interior of the right knee.

What steps were taken immediately?—An alarm was directly given; and although the master was urged at least to confine the dog, yet he refused to take any precautions whatever. The child was taken to the first medical man, who immediately, and as he thought in the most efficacious manner, applied lunar caustic (nitrate of silver) over the surface of the wound. The child went home, and took some aperient medicine on the next day, at the request of the same medical attendant. Mr. Frankum, surgeon, of Lisson-grove, being now sent for, observing that the wound was only superficial, that is, cutaneous, and finding, upon inquiry, that the dog had hitherto betrayed no symptoms of rabies, thought it necessary to do no more to the wounded part, which had been rather painful, than to apply a blister over the eschar. The child, during the day, had displayed symptoms of drowsiness and irregularity of mind, a desire to retire, to abandon his usual occupations, and appeared to be affected with all the symptoms of a slight fever.

How long was this after the bite?—These appearances occurred on the afternoon ensuing that on which he was attacked by the dog. The febrile excitement which I have described, began during the night on which he was bit, at about midnight, but became much more conspicuous on the ensuing morning. The fever abated slightly during the day, so as to allow the child, for a short period, to regain its wonted liveliness, but soon returned with increased violence. Mr. Frankum administered liberally the medicines which he deemed desirable, viz. calomel with antimony; under the use of which the symptoms were in no degree alleviated, but gradually grew more and more embarrassing until the morning of the fourth day, on which a manifest change for the worse was observed. About four A.M. of this day, was the last period at which he was enabled to swallow. From this time forward, he sedulously avoided all sorts of fluid, any one of which, when put even to his lips, threw him into violent convulsions. They succeeded now and then in introducing toast and water into his mouth; but the effort which he made to swallow it was followed by the most frightful contortions, characteristic, as far as regards the nature of the convulsions, of the disease, hydrophobia. Anxious to have some assistance from a medical man, and desirous of dividing the responsibility with another, Mr. Frankum consulted Dr. Conolly, who did not however arrive till collapse, fatal collapse, the result of the incessant convulsion, had supervened. Dr. Conolly soon perceived that there was no hope whatever of his recovery, and left him to tranquility.

There were no steps taken to cauterize the wound again?—No; Mr. Frankum, finding that the symptoms had already displayed themselves, considered it unnecessary, either to excise the wounded part, or to recauterize it; it being a principle with medical men that it is of no use to do any thing of that kind after the poison has begun to act upon the system, or has begun to work.

How long did the child linger before he died?—Three days; he died upon the fourth day after that upon which he had been bitten: the symptoms in his case displayed themselves unusually early, and ran an unusually rapid course.

It was the opinion of Dr. Conolly, yourself, and Mr. Frankum, that the child died unquestionably of hydrophobia?—Yes; they sent for me to examine the body of the child; and from the circumstances related to me, compared with the morbid appearances, which I found (and which may be seen preserved in the Museum of the London University), I have no hesitation in answering the question in the affirmative: they have expressed a similar conviction.

There was no doubt whatever as to the dog being affected with disease?—No; such was the conviction also arrived at by the jury at the coroner's inquest, which was held in consequence of the dog not having displayed any symptoms of hydrophobia; or, as the disease is called in the dog, of rabies, unless indeed this viciousness could be considered in such a light: the dog remained equally kind to his master, and, if any thing, had of late taken his food with more than ordinary alacrity. The coroner particularly and solemnly urged that the dog might be preserved, in order that we might see how far the symptoms of hydrophobia would develope themselves. The master, however, who had behaved ill throughout the whole of the transaction, having not only refused to confine the dog, but to permit of a physician being called in to the patient, neglected with equal recklessness the injunction of the coroner, and hung the animal next day. An examination of the body of the dog took place immediately afterwards, in the presence of Dr. Conolly, Professor Pattison, Mr. Frankum, and myself, under the superintendence of Mr. Youatt: every part of the dog, except the spine, was examined very minutely and anxiously, in order that no doubt might remain of the true nature of the case. In the child, I had examined even the spine.

Mr. Youatt pronounced that the dog was absolutely rabid?—No; but he expressed his conviction, in which he was joined by all present, who had witnessed the bodies of dogs who had died of rabies examined, that the morbid appearances were such, as

either indicated or excited a strong suspicion of the existence of rabies in an incipient stage.

Of what breed was the dog?—I am not sure; the examination of the body of the dog had commenced previously to my arrival, I was, therefore, too much interested at the time to notice this circumstance; but the dog was of considerable size, and, I am informed, was a mongrel spaniel.

Have you had, since your introduction into the profession, many cases of the same nature?—No; I never had a case under my own treatment; but from the circumstances of my father and my friends having had several, and from the general interest felt upon the subject by all persons, I have attended very much to all the cases which have been of late published, and particularly to the masterly cases related by Dr Marshall, in his Morbid Anatomy of the Brain. The only instance in which this dog displayed any symptom which could be referred to rabies, was the act of biting the child, though it was not used to be snappish, nor did he display any symptom subsequently to the bite, at least none was observed. The animal was killed as a measure of precaution.

From the facts of this case, it is clear that a state calculated to terminate in rabies may exist in the dog, without exciting any symptoms that shall appear remarkable to by-standers, and that, in such a state, a bite from the animal may excite in the human being the disease called hydrophobia. I should deduce the same inference from my reading generally. I wish, therefore, to suggest to the Committee the propriety of

1st, Obliging all dogs to be kept muzzled during certain periods of the year, May, June, and July.

2d, To cause all dogs, who may have bitten any one, whether in a rabid state or not, to be put by their masters under the surveillance of a public officer, till such time as he declares them to be harmless.

3d, To permit all dogs whatever, whether with masters or not, that may be found unmuzzled in the street during the above-named periods, to be put to death.

I am sure, moreover, that there can be but one safe way of treating such cases, viz. to cauterize the wound after having excised the bitten part. As a general rule, this should never be omitted. I have, therefore, made it a rule never to allow of any patient coming under my care, with a possibility of getting the malady, unless the friends will consent to the operation. I followed this rule in the case of the boy mentioned already, as now under my care; cut out the parts, and cauterized the surfaces of the wound well with lunar caustic. The boy is doing well.

Richard Frankum, Esq., called in, and examined.

You are a surgeon?—Yes.

Where do you reside?—In Grove-place, Lisson-grove.

Have you had a case of hydrophobia under your care recently?—Very recently.

How long since?—Within a fortnight or three weeks.

State what the case was?—We had no reason at first to suppose that it would have been hydrophobia, the dog not presenting at all the appearance of disease. The child was bitten by a dog that appeared to be as well as any dog could be. The party whom I applied to to see the dog almost refused, stating it was quite impossible there could be any danger in the dog.

Was he allowed to be at large?—I should say at large, as there was no restriction. He could run out of the premises as he had done before: I believe the owner kept him for the purpose of intimidating the children and persons in the neighbourhood from coming near the premises.

Did you attend the child immediately after it was bitten?—I did not see the child the evening it was bitten; if I had seen it, I think I should have been able to have prevented the unfortunate circumstance that afterwards ensued. I saw it on the following morning.

What was done?—Some person was called in the same evening the child was bitten, and applied lunar caustic to the wound.

They did not excise it?—No: when I went in the morning, and saw the dog in such an apparently healthy condition, knowing that the operation would be a severe one, I hesitated whether I should or not excise the part, hoping there might be no chance of the disease. I allowed it to go on, as I expected it would, very favourably; but in a few days it proved otherwise.

Did the symptoms of hydrophobia appear very soon?—Not until three days after, which I consider exceedingly early.

What time did the child die?—As the bite took place on Wednesday evening, the child died on the Saturday evening following.

The disease, in fact, appeared on the fourth day?—Yes; and the child died in a very few hours.

You are quite positive, from your own opinion, as well as that of others who saw the child, that it died of hydrophobia?—There does not now remain a doubt upon that circumstance; none whatever. I was exceedingly desirous, when the inquest on the child took place, that the dog should be saved at least three weeks. The jury and the coroner very properly coincided in that opinion; but the owner of the dog, who manifested a great deal of unkindly feeling on the occasion, the instant the inquest

was over, ordered his servant to hang the dog, and he was killed immediately after: the only alternative then, was to have as early a dissection as possible.

That dissection he permitted?—We were obliged to do it by intimidation; by that means we obtained the dog, and he was dissected by Mr. Youatt: myself, Professor Pattison, Drs. Conolly and Thomson, being present.

Were they all of opinion that the dog was in a rabid state at the time he was hung?—I can scarcely say that: in being positive, I would restrict myself to this, that we found such disease in the dog as was unquestionably sufficient to produce disease in any individual, though the dog was not apparently mad when hung: the stomach was in such a state of disease, irritation, and inflammation, that two or three days more would have been sufficient to have produced an ulcer in the stomach.

Had the dog any such thing as straw or brick within him?—A portion of hair, and something like the appearance of rag, with straw, and a large portion of bone (that is the natural food of a dog); but under such a state of the stomach, it would not become acted on by the gastric juice.

Had he the same state of stomach as dogs generally have when in a rabid state?—Certainly; possessing all the appearance that the stomachs of dogs do that are killed in a rabid state.

Were you present at the opening of the child?—I was. It was a case of too much interest to be absent. I was in doubt whether the child's death arose from the inoculation of a specific poison, or from the circumstance of the bite. On the second day, I supposed there was something more than usual, because the child appeared slightly embarrassed in his breathing, without any sensible cause. I began to suspect there was something operating which I could not account for. On Saturday, the child was excessively depressed, not affected as persons usually are who are labouring under hydrophobia, which is a disease that usually produces an opposite effect. He was then so much depressed, that I was obliged to order him wine, and other stimulants, which he did not swallow but by force, and he was seized with convulsions after every attempt. These convulsive fits afterwards occurred spontaneously, and the child died from the exhaustion produced by them. These fits were undoubtedly the effects of a poison communicated by a dog in a diseased condition.

Were you and the other gentlemen quite convinced that the child died of hydrophobia?—The peculiar convulsions, and the difficulty the child had in swallowing any fluid, so far confirmed us, that we had not a doubt of it, especially when we came to

the *post mortem* examination. Then we found all the symptoms so rationally accounted for, that nothing but that disease could have produced such an extent of morbid appearances.

Was there a strong sensation at the sight of liquid?—None whatever. He had only those dreadful convulsions, and spasmodic affections of the muscles of the throat, about four hours beforehe died. I have had other cases of hydrophobia come under my notice, but they were always attended with symptoms of the most horrid excitement. The smallest breath of air would throw them into the highest state of convulsions.

Have you, from your practice, observed the disease to have increased of late years, or otherwise?—I should consider it has increased, not only from my own practice, but from what others say respecting it.

Are the number of persons who have been bitten more considerable of late, to your knowledge?—I should say, a great many more in proportion; or whether it be that persons who have been bitten have hitherto thought nothing of it, and now find it necessary to apply.

Have you formed any opinion as to whether this disease is to be attributed to any other cause than the bite of a rabid animal?—Hydrophobia is a specific disease, arising from the effects of a certain poison introduced into the system by the bite of a rabid or enraged animal. It can, in my opinion, be produced in no other manner.

Do you suppose the disease may be communicated to the dog by any other means than the bite from another?—Decidedly. Any dog may engender the disease within him. That, in my opinion, forms the great objection to the number of dogs there are suffered to be at large. In our neighbourhood it is an intolerable nuisance. A number of the vilest curs it is possible to see, are continually running about. Yesterday I was much alarmed, knowing the consequences which attach to such a thing: I was writing a prescription in a chemist's shop. A dog came into the shop: the persons who keep the shop have a dog, which came into the room, when the stray dog instantly snapped at him: the other, though the stronger of the two, ran off, and cried as if beaten severely; for there is this singularity, that healthy dogs, though of a quarrelsome disposition, never return the bite of a rabid one. When I went out, I saw the same dog go and bite another, and I looked for a policeman to follow the dog. I watched him the full extent of the street, but was not able to see whether any other dogs were bitten. Several dogs have been bitten in our neighbourhood, and it is with some risk that I and others walk about.

Have many persons been bitten in your neighbourhood lately?—I have been obliged to operate on many. The other day I had a distressing case. The only son of a respectable man in the neighbourhood was walking with a nurse in the street: a dog came out in the most unprovoked manner, and bit the child on the eyelid. If I had cut through the eyelid in excising the part, I should have either disfigured the child for life, or, if I did not do it effectually, I should have left him open to the disease of hydrophobia. I afterwards cauterized it as neatly as possible, and the child, up to the present time, has done well: this is about a month ago.

When a person is brought to you who has been bitten by a dog, do you think it proper to have recourse to excision?—There is no other ground of safety: it depends on the care with which the operation is performed, whether the life of the individual be saved.

If a person be bitten, and you cannot find out the dog, would you, under those circumstances, not think it safe except to apply caustic and excision?—If I did not, I should not be doing my duty: there is no safety without excising the part, however friendly the appearance of the dog may be. A dog may be in an incipient state of hydrophobia, and yet not manifest the disease.

ARMY VETERINARY DEPARTMENT.

DUTIES OF A REGIMENTAL VETERINARY SURGEON.

No one who has shone in the ranks of Mars needs to be informed that there is a vast deal of "leather and prunella" in the duty of a soldier, be his grade or office what it may. Perhaps, on a moderate computation, it may be averred that one half of his time is consumed in making an "outside show;" while the remaining half is found sufficient for the performance of such duties as are of real or essential service. Unfortunately, at the present day, this art of *beau ideal* is found a great deal too much pervading the medical departments: either the professional man himself (a young aspirant, perhaps) acquires a *goût* for the "long sword, saddle, bridle;" or his commanding officer enforces the manifestation of something of the kind, by investing him with all the finery and frippery of a regimental coat, and enjoining a series of parade duty and military etiquette upon him, which is not only quite irrelevant with his station, and inconsistent with what ought to be his pursuits, but which really tends to give a bent and turn to his mind very ill-suited to his charac-

ter as a professional man. It is notorious enough that but few men of the medical profession in the army can raise themselves into much estimation among their professional brethren in private life. Whether the same remark be applicable to veterinarians or not, I must leave it to others to determine.

The duties of a Regimental Veterinary Surgeon may be comprised under the following heads:—The treatment of sick and lame horses; and the registry of their cases;—the superintendance of the shoeing department;—the passing of horses into the service, and the casting of them out for sale;—the regulation of the temperature and ventilation of the stables; and also of the mode and times of feeding and exercise, and any other circumstances that may affect the general health and condition of the horses; also the quality of the forage served in for their use.

The contemplation of these several duties may serve to place the veterinary surgeon of a regiment in a light of more importance than he is apt to be viewed in; at the same time that they may serve to shew what the nature of his professional education should be to enable him, with credit to himself and advantage to the service, to execute them. The examination of the sick and lame are the parts of his office he is probably best prepared to undertake, as being the species of knowledge he has obtained at his "college:" but his abilities, as required to be extended much further and wider than this, might fairly become a question in the mind of the commanding officer into whose regiment he happened to become appointed. In fact, there is evidently enough, from this plain statement, a vast field for the improvement of the qualifications of such as enter the army in the capacity of veterinary surgeons; and those who enter any of our cavalry regiments will soon make this truly important discovery.

The management and treatment of the sick and lame horses of a regiment, is a part of his duty which is, or ought to be, left entirely and exclusively to the discretion of the veterinary surgeon. Should he in the least be interfered with in these professional concerns, it will become quite impossible for him to render that benefit to the service which is required of him; nay, such interference will and must have a contrary effect. Without entering into any detail of them, or prescribing any fixed rules for the performance of these medical duties, it may be observed that they (like military duty in general) will be much facilitated and better executed by a steady adherence to some sort of arrangement and method of proceeding, which must be drawn up and regulated according to the internal economy of the regiment itself, the conveniences or inconveniences of the place in which it happens to be quartered, and other contingent circumstances. To method

and arrangement in the conduct of his medical duties, the veterinary surgeon of a regiment should add promptitude and decision whenever his opinion or judgment is called in question; at the same time that he is precise in giving his directions and peremptory in issuing his orders. Nothing will sooner lose him any preconceived good opinion his commanding officer may have formed of him, than indecision, unless it be negligence of personal matters; and, therefore, let him take care to be smart and soldier-like in his dress, as well as active and determinate in his conduct.

Antecedent to the year 1818, no official Registries of Veterinary Transactions were kept in the regiments of the cavalry. In this year, a General Order was issued from the Horse Guards, of which the following is a copy:—

GENERAL ORDER.

Horse Guards, 12th Sept. 1818.

His Royal Highness the Commander in Chief is pleased to direct, that a Book shall in future be kept by Veterinary Surgeons of Regiments of Cavalry, which shall contain Registries of their present practice in cases of sick and lame horses, and of the measures which are adopted when any contagious disease makes its appearance; specifying the particular disease, the remedies or mode of treatment, and the result of such treatment.

A Return is to be subjoined shewing the number of sick and lame horses; the nature of the diseases with which they have been affected; and the number which have been cured or have died, or been sold or destroyed, during every six months.

It will be the duty of Commanding Officers of Regiments frequently to inspect this Book, which is always to be produced to the general officers at their half-yearly inspections, with a view to its being noticed in their confidential reports.

(Signed) H. CALVERT, Adjutant General.

The book or register consists of two parts. The first is a sort of diary or journal of cases as they happen to present themselves; which constitutes by far the greater part of the register—there being twenty or thirty pages of this to one of the other part, and is headed as follows, in every page:—

Register of Diseased Horses*

Belonging to the —— regiment of ——; specifying the method of treatment adopted for the cure of their diseases, and the result.

Directly underneath this heading the page is divided by lines into six spaced columns, intended to be filled up according to

* In the next edition let this be printed "REGISTRY."—*Printer's Devil.*

their respective superscriptions, which are these—viz. 1st, *troop;* 2d, *number* (of the horse); 3d, *date of admission;* 4th, *disease;* 5th, *remedies or mode of treatment;* 6th, *effects and remarks.*

That the registry of the cases of sick and lame horses, and such other accidents and occurrences as come under the notice of the veterinary surgeon, in a regiment of cavalry, is highly necessary, cannot for a moment admit of a doubt in the mind of any one at all conversant with medico-military matters: and it only excites our surprise to find that so necessary a step has not been taken in times long before, seeing that the surgeons of the army have long kept registers of a similar description. It will be likely, however, to excite more surprise still when I come to state, that, although the fact is undeniable that registers are kept, yet that which of all others is the most useful end they could tend to is overlooked, or rather (by the plan of the journal itself) completely frustrated. Surely no one, for a moment, will dispute that a veterinary journal ought not to be devoted to veterinary purposes, and kept mainly with a view of improving that art or science of which it recorded transactions and occurrences in practice. And, yet, do we find this natural and straightforward, and most and only truly desirable object accomplished in the "Register of diseased horses"? Let any one look into it (kept how it may be—for there are more ways than one of keeping it), and say whether such an object is or ever can be carried into execution? The space given renders it totally unfitted for any such use; and even if that allowed of it, the plan is upon such a narrow and limited scale, that the practitioner and register finds himself so "cabined, cribbed, confined," that he dares not even attempt it. The consequence is, that all the "register of diseased horses" amounts to, is, that it informs its reader, that *a troop horse of* B *troop was admitted on the* 1*st of May,* 1830, *on account of inflammation of the lungs, for which he was bled and blistered, and of which he died or recovered on the* 1*st of June, of the same year.* What a volume of FACTS *—pure, unadulterated, uninstructive facts!!!*

That which alone can render the registry of the cases of sick or lame horses at all valuable, in a medical light, is an accurate history of their *origin, symptoms, progress and mode of termination;* together with the method of regimen and medical treatment adopted at the beginning and every successive stage to the last. Were the "register" framed upon this scientific and only useful construction, it might (and certainly would, whenever it fell into proper hands) be made a very valuable repository for future reference: but, in its present circumscribed and unfurnished condi-

tion, it amounts to not one jot more than the *regimental general register of the horses* does, a book which is kept in every regimental orderly room in the service.

The second part of the "register of diseased horses" consists of (to use its own language) "*A half-yearly return of sick and lame horses, belonging to the —— regiment of ——; with a description of their diseases.*"

To read this plausible superscription, a person might be led to suppose that herein was all the information supplied, of the absence of which we have been so loudly complaining. "With a *description* of their diseases," certainly looks mightily like reclaiming the character of the "register." But, alas! this all turns out to be delusive: it proves to be nothing more than an *abstract* (without any additional particulars) of what stands in the former division or *diary* of the register. For example, it presents a series of spaced columns, ten in number, headed as follows—*diseases, admitted, cured, relieved, incurable, under cure, died, destroyed, sold, remarks.* The information the "half yearly returns" conveys is, therefore, this—that twenty horses were admitted on account of having catarrh (or any other complaint or lameness); that so many out of the number were *cured;* so many *relieved;* so many deemed or proved *incurable;* so many remaining *under cure;* so many *died;* so many *destroyed;* and so many *sold;* and all this within the prescribed space of one *half-year.* The whole account, therefore, as I said before, amounts to naught but a summary in round numbers of what has already been, after the same laconic and uninteresting manner, entered in the former part of the book—the diary. To call such a "*description* of the diseases of the horses" is absurd: it may be denominated a *numerical* abstract of what has gone before; but it affords not one tittle more of information, or, in other words, is equally valueless for any *medical* purpose.

The most extraordinary part of this learned specimen of register-manufacturing is yet to come, however: it consists of a *nosological* arrangement, which, for lucidity and comprehensiveness, may vie with any thing but the first effort of the youngest pupil at the Veterinary College. We imagine it may be this *military system of nosology* which embraces the "*description* of diseases" set forth in the title of the "Return." At all events, it is a glorious achievement! The "Order" (for the diseases are all set down in *order*, be it noted, i. e. *one after the other*)—the Order, we repeat, commences with

GREASE,

and then comes—O, happy thought!—

MANGE and *other cutaneous diseases*, as if grease were a disease of the brain or heart, or any other part about the animal but the veritable *skin* (of the heel).

Next is put down FARCY; and pray what is *farcy?* Does it not likewise inhabit the *skin?* Is it found anywhere else? And yet it is not ranked among *cutaneous* diseases!

Then, we have *acute* GLANDERS and *chronic* GLANDERS. And the glorious classification of "DISEASES OF THE LUNGS *and chest!*" Mind, the book does not say the lungs are *not* in the chest. After this comes a sweeper—DISEASES OF THE CONTENTS OF THE ABDOMEN.

From this we need go on but to name the remaining "classes," to satisfy our professional reader that we have not over-rated the value of this military system of nosology: they are as follow:—

Diseases of the Eyes.
Staggers.
Strangles.
Catarrh *and cough.* (Is not cough a *symptom* of catarrh?)
Poll Evil and Fistula.
Spavin and *other Diseases of the Hock.*
Contracted Hoofs.
Sandcracks.
Corns *and other Diseases of the Feet.* (Although sandcracks are set down just above.)
Lameness from *other* causes.
Accidents.

Following which are *four* spare columns (there ought to be *fourteen*) allowed for omissions of the nosologist, or the whims or fancies of the Keeper of the Records.

AN ARMY VETERINARIAN.

ON THE METHOD OF HIRING SHOEING-SMITHS.

By Mr. CHARLES CLARK.

I AM desirous of calling the attention of my brethren in the veterinary profession, to a subject which has long and deeply involved the interests of every practitioner, particularly those in London.

We are all in the habit of giving very high wages to our journeymen shoeing-smiths, at the rate of from 70 to £100 per annum, which is a higher remuneration, I will venture to assert, than any other class of workmen can command who can be compared to ours in point of knowledge and respectability; or, I might reverse it, and say, in ignorance, drunkenness, and un-

profitableness to their employers. I am not about to complain of the rate of wages as paid to those who are active, clever, and steady,—such are valuable on any terms; but I will maintain, that we do not take the proper course to encourage good workmen, whom all masters will agree are a very scanty minority.

Now, I consider that we are ourselves to blame in this; for so relax at present is the mode of hiring men, that any drunken vagabond, however unpractised, equipped with a new apron and an old shooting-jacket, having impudence enough to call himself "fireman," may obtain employment, even in the best forges, without any inquiry as to the character he had left behind him at his last place. It may be weeks before a master finds out, in such a business as ours, that he is a shifting, careless, or ignorant hand, or has other faults which make him not to be depended on. If we then discharge him, he cares not; for by only going perhaps a few hundred yards distance, he may again get work; of course demanding, in the same manner, high wages, because he says he can take either the foot or the fire, and has worked in good situations for improvement.

If business is slack, and it should happen that he does not readily get a job, he draws an allowance from his club, and wanders from place to place, levying contributions of drink, &c. from the more industrious and steady men. In this manner they acquire such roving, irregular habits, that they become careless about pleasing their masters, or perfecting themselves as workmen; but they increase mightily in conceit and impudence, by finding that high pretensions serve in the place of good character.

They seldom get beyond mediocrity in their business, and set their faces against all improvement. In fact, it is too well known that they are very often the virtual masters in many forges; and if a master dismisses a bad set altogether, and puts himself to the inconvenience of introducing a fresh lot of men, he has no reason to expect, under the present system, that they may not turn out as bad or worse than the former. In short, the men are combined, and their employers do not make the smallest exertion in their own defence.

The measure I am about to propose is nothing new or oppressive, or very troublesome; for we always resort to it previous to hiring every other description of servant, even when they do not receive half the wages that Shoeing-smiths do. It is simply this, that no respectable practitioner should take a man into his service without minutely inquiring his character from the last place or places at which he worked; and also be ready, at all times, to give to our brethren an answer, fully and without reservation, to all proper questions. Why should we be particular in inquiring

the character of an errand boy, or a common groom, yet take upon trust that of a journeyman, for whom we are compelled, in some degree, to be answerable with our professional credit, and to whom such valuable property is confided.

Shoeing a horse is an operation often of so much delicacy, and involving such important consequences to the owner, that I do not think we are justified in carelessly engaging a half drunken or inexpert workman, and be satisfied if he gets through his day's work.

It may be said, "Oh, these things correct themselves; I can soon find out if a fellow is a bad one, and I discharge him." Very well; but considerable time may elapse, where many men are kept, before you *do* find it out, and mischief may be done. Would it not have been much better to have known the man's character at first? As to discharging him, that is the very thing to which I object, inasmuch as you do not prevent his going to work somewhere else on the credit of your respectability; and his knowledge of this is an encouragement to misbehaviour.

So self-evident, indeed, is the advantage accruing from this simple measure, that I do hope a few of our leading practitioners will make it general by their adoption.

It is probable that in some instances proper inquiry may have been instituted by others as well as myself; but in the great majority of cases they are taken without *warranty*, and experience too frequently proves them not *free from vice*.

This neglect must have originated, I apprehend, in the difference of feeling which formerly prevailed between the veterinarian and ancient farrier, who, besides, as he commonly worked along with his men, had a better chance of guarding his own interest. As to the feeling alluded to, I hope it has wholly ceased to exist, or, at least, that such inquiries would be mutually answered with perfect candour.

We should soon, I am persuaded, see a change in the character of shoeing-smiths, since bad conduct would diminish their chances of future employment, and a disposition, or rather a necessity to obey instructions and learn their trade well would take place of the self-sufficiency which is now their characteristic quality. Not to be too prolix on a subject of such obvious advantage to us, I have only to apologize to the profession for taking up this matter for the first time publicly: I should have preferred seconding the motion had it been made by another; but I now appeal to them for support in it, and doubt not that the measure will meet with your editorial approbation.

As it frequently happens, in these cases, that a measure fails for want of concert, unanimity, and perseverance, the writer pro-

poses, that those gentlemen who wish to adopt this system, should inform him at once by letter (post paid); and steps may then be taken to determine on, and give weight to, the rule, in a general meeting of the profession.

Veterinary Infirmary, Stamford Street,
Feb. 10, 1831.

THE VETERINARIAN, MARCH 1, 1831.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

ON the first of last month the annual dinner was given by the pupils of the Royal Veterinary College to their Professors, Examiners, and Medical Teachers: Sir Astley Cooper occupied the chair. We do not recollect to have seen a larger assembly of the great men, nor a more respectable class of students. The dinner was excellent; the wine was good; and the stewards were indefatigable. The speeches were of the usual character,—almost verbatim what they have been for many a year, except that there was nothing to give offence. The language of the Chairman, the Professor, the Examiners, and, indeed, of every one who addressed the assembly, was moderate and conciliatory; and, indeed, so pleasantly did every thing go off until the greater part of the visiters had quitted the table, that a very eminent lecturer observed to the writer of this article, that he had never before attended so well-conducted a medical dinner. The repetition, however, of thrice-told stories, even to those who were once actors in these scenes, would be tedious; and we will, therefore, refer to the last two volumes of our Journal for a tolerably faithful picture of what was said and done, with the pleasing and satisfactory exception to which we have alluded.

This Number contains two very important horse-causes. The first sets at rest a question that ought long ago to have been decided,—whether crib-biting be unsoundness. There can be no doubt that it lessens the value of the horse in the estimation of every purchaser; for the stomach, constantly inflated with air,

cannot perform the digestive process so perfectly as that which is enabled to contract upon its contents; and there must, to a certain extent, be a deficiency of nutriment, and a proportional diminution of strength and condition. Many crib-biters are excellent horses. They are said to be idle, lively, spirited animals. Almost all of them may be capable of ordinary work, and many of them of extraordinary work; but the question is, are they so capable of work as they would have been without this strange habit? and are they not, in consequence of this habit, more liable to cholic, and that of an obstinate and dangerous nature, than they would otherwise have been? Crib-biting, therefore, may fairly be considered as unsoundness, as it interferes, or is likely to do so, with the value and use of the animal; and a sad door for litigation would be left open if the decision turned on the degree, and not the existence of the habit. We confess we think that the jury determined rightly; and Lord Tenterden was of the same opinion, when he said, "Gentlemen, I think you have returned a proper verdict."

The second trial, likewise, settled another point, if it did or could need to be settled,—that a horse that has been lame, and, although he is afterwards perfectly free from lameness, retains an alteration of structure, the consequence of disease, and of that nature that, with hard work, he will possibly again become lame, must be an unsound horse.

On the evidence of some of the witnesses, and the contrariety of opinion here, and in a thousand other instances, expressed between those who teach in the same school and lecture to the same class, we are unwilling to comment. These things, however, should not so be.

The letter of Mr. Charles Clark is on a very important subject, as it regards the comfort and the honesty with which the shoeing department of our business is conducted. Our smiths and our forges are too often sad nuisances to us. It is, perhaps, because we make up our minds that we *must* be subject to this annoyance, that we exercise so little circumspection in the hiring of our forge-men. We are careful that our employers shall

not seriously suffer; but as for our share of the *nuisance*, it has always existed, and will exist, and we must endure it. Farriers will tipple, and now and then cheat, and we must bear it as well as we can; and the grand cause of the tippling and other provoking behaviour is, the ease with which these men get employment.

We would join Mr. Charles Clark in advising our brethren, for their own sakes, and for the sakes of their patients and employers, to exercise a little more care in hiring the shoeing-smith. If they only who could obtain a good character, and that of some standing, for sobriety and steadiness, were employed, our men would be more to be depended upon, and we should be more comfortable. There is no need, however, of any public meeting about it: the evil is easily remedied, by our determination to do that which reason and interest prompt us to do with regard to all our other servants.

Veterinary Medical Jurisprudence.

CRIB-BITING UNSOUNDNESS.

PAUL, ESQ. *v.* HARDWICK.

THIS was an action on the warranty of a horse sold by the defendant, a horse-dealer in Tottenham-court-road, to the plaintiff, Mr. Paul, the banker, in July last.

The warranty was contained in the receipt given by the defendant for the price of the horse, and was in these terms:—"Received of J. B. Paul, Esq., the sum of sixty-five pounds, for a bay gelding, warranted sound, and free from vice." The alleged unsoundness or vice was, that the horse was a crib-biter.

Sir James Scarlett, in opening the case for the plaintiff, read an extract from Dr. Rees's *Cyclopædia*, in which crib-biting was described as a vice, and the writer, distinguishing vice from unsoundness, gave it as his opinion, on the effect of a warranty, that if it extended to soundness only, the horse was not returnable for crib-biting; but if it included a warranty against vice, it was; crib-biting being, it was said, "one of the worst vices."

Philip Hearn, who had had the care of the horse after the

plaintiff purchased it, stated, that as soon as it was put into the stables, it began crib-biting pretty sharply, and mauled the harness about.

Did you put the harness out of its way?—O, yes; or it would have been soon all gone.

Did he appear to be an old crib-biter?—Yes, he was a stanch old hand.

It was proved that the defendant had had notice to take the horse back; and that he refused, stating that crib-biting was "no vice." He admitted that he knew the horse was a crib-biter at the time he sold it to the plaintiff.

The plaintiff's attorney said he believed it was the same horse that had been offered to him for £30, about six weeks before. It was a good shaped horse, and in very fair condition; but he returned it because it was a crib-biter.

Richard Tattersall proved that the horse was sold at his father's auction, by the plaintiff's direction, on the 12th of July last, at 26 guineas. It was knocked down in the name of Robinson; but the defendant was present at the sale, and paid the money. The net proceeds were £23..19s..6d.

[It appeared by the subsequent evidence, that the defendant having got the horse again, afterwards sold it to the Rev. Dr. Halcomb.]

Mr. *Sewell* stated, that he was assistant professor of the Veterinary College. Crib-biting, which was a vicious habit in horses, was considered as an unsoundness. It was treated as a disease. It frequently led to indigestion, and then, of course, there was no saying what might follow. It was curable in its early stages.

Mr. *Bracy Clark* was of opinion that crib-biting was one of the worst vices of a horse. It had always been considered as a vice. When it became confirmed, so as to affect the health of the animal, it was an unsoundness. A crib-biter, he should say, would be returnable upon a warranty against vice, but not upon a warranty confined to unsoundness, unless the health of the horse was affected by the habit at the time.

The Attorney-General addressed the jury for the defendant, and called the following witnesses:—

William Cadman stated, that he was in the employment of Mr. Shackwell, who kept stables in Oxford-street for the sale of horses on commission. The horse in question (he believed it was the same) stood in those stables for sale in June last, and was purchased by the defendant. It was then very healthy, and in good condition. It was not a "stanch old hand" at crib-biting: it bit but very slightly.

Cross-examined. — Young horses would frequently imitate stanch old crib-biters.

Richard Hardwick, the defendant's brother, stated, that the defendant bought the horse of Mr. Shackwell, in June last, for 40 guineas. It was warranted sound, and quiet to ride or drive. It was fresh, and in good condition; and continued so till it was sold to the plaintiff. It was not "a determined" crib-biter. It was kept in the defendant's stables for a month before it was sold to the plaintiff, and the manger (a wooden one) was not at all injured by its biting.

Cross-examined.—It had been since sold to Dr. Halcomb. The price asked was 60 guineas; but witness did not know what his brother got of Dr. Halcomb for it.

Professor Coleman stated, that horses had the habit of crib-biting in very different degrees. He was inclined to think that the true meaning of the word "vice" was, some vicious quality, which was dangerous to the owner of the horse, or to others who rode or drove it, and not merely a defect or fault, because if that were the case, tripping or shying would be a vice, and few horses were free from some defect or fault. A crib-biter might be a vicious horse, but not necessarily so because he was a crib-biter.

Is crib-biting an unsoundness?

That depends on the definition of the word "unsoundness." I have always considered wherever there is an alteration of function in any part, so as to influence the entire functions, and prevent the animal from performing the common duties of a horse, that he is unsound. According to that definition, a crib-biter may or may not be unsound. If the habit exists in a slight degree—that is, if the horse only occasionally bites his crib, but supports his condition, and can perform all the duties of a horse,—then I should say he was not unsound.

On his cross-examination, the witness stated that the habit of crib-biting frequently produced a disordered function, which was the effect of swallowing the air in the attempt to lay hold of some fixed object. That produced indigestion and a disordered stomach, a difficulty of breathing, with spasms and inflammation; and if the disorder got lower down, it produced a disorder of the bowels. The habit of crib-biting might be acquired from imitating other horses; but that was by no means the most frequent cause. It frequently attached to high-bred horses, and others that were kept long without food. In ninety-nine cases out of a hundred that was the main cause of crib-biting. As the horse in question had been stated to be in good condition, witness should

infer that none of its functions were impaired, and its health was not affected by this habit; and his opinion was, that, in general, crib-biting did not affect the health of the animal.

Sir J. Scarlett.—Don't you know that crib-biters are always draughted from a regiment?

Witness.—Not unless they have some other defect besides crib-biting.

Re-examined.—Crib-biting did not arise from impaired functions in the animal, though it sometimes produced that effect.

Lord Tenterden.—Suppose a crib-biter sold to-day in good condition, in six months hence it is found to have inflammation in the stomach or bowels, with a difficulty of breathing, or any of the other symptoms you have described, should you say it was unsound or not?

Witness.—Unsound when sold, inasmuch as you would be able to trace the effect from the cause.

Mr. *James Turner* stated that crib-biting, in his opinion, was, in the greater number of instances, a habit contracted by imitation. Whether it was or was not injurious to the health of the animal, depended upon the degree in which it existed. Witness believed that a horse might be a crib-biter and yet be perfectly sound; but he believed also, that it was decided unsoundness in many cases. It shewed itself more particularly by the animal distending its body with wind; but all crib-biters did not distend their bodies with wind in the same degree. It could not be considered as a vice, inasmuch as crib-biters were generally perfectly tractable to ride or drive, and they did no danger to their owners.

George Gosden stated, that he had been a veterinary surgeon for sixteen or seventeen years. Had known the habit of crib-biting to exist in various degrees.

The Attorney-General.—Is it necessarily a vice or an unsoundness?

Witness.—Neither.

Have you known horses to have that habit in a considerable degree, and yet to be extremely healthy for a number of years, and to be capable of doing their work?—I have. I have known the best of horses to be crib-biters.

Do you know that the horse called "The Colonel" had the habit of crib-biting?—I have heard he had it for a number of years.

Sir J. Scarlett.—Does your experience agree with that of Mr. Coleman, that it very rarely arises from imitation; or with Mr. Turner, that it generally does?—That it generally does.

As, in your opinion, it is neither a vice nor an unsoundness,

allow me to ask you, whether it is an advantage ?—It certainly is not an advantage.

Is it a merit ?—Yes. (Laughter.)

The witness explained, by saying, he meant to state that "a slight crib-biter" was neither an unsound nor a vicious animal.

What is a " good stanch" crib-biter ?—An old horse that has had it for a long while. (Great laughter.)

Is the health of an old stanch crib-biter affected by the habit? Not unless the stomach or bowels are affected.

Is it a disadvantage to have a crib-biter where the habit exists in a great degree ?—Sometimes it is—sometimes not.

You would not, then, give a guinea less for a horse because it was a crib-biter ?—Perhaps not, if it had it only slightly.

Perhaps you have cured some crib-biters ?—No; I never have.

Have you ever attempted it ?—No.

What remedy would you apply if you were to attempt to effect a cure ?—Tie his head up to the manger. (Laughter.)

Would that cure him ?—It would not.

Lord Tenterden.—Why should you do it then ?—It would prevent him from biting the manger. (A laugh.)

John Lythe, a veterinary surgeon, examined by Mr. Hutchinson.—Have you known horses to have the habit of crib-biting, and yet their general health not affected by it ?—Many ; in the army particularly.

If they have it not in a degree to affect the health of the animal, are they, in your judgment, unsound, because they are crib-biters ?—Certainly not.

When they have it only in a slight degree is it a vice ?—Not unless it disposes the horse to some bodily mischief.

The witness, on cross-examination, stated, that the habit arose frequently from want of food, and frequently from irritation ; and he mentioned an instance of the latter.

Is it a desirable thing for a horse to have ?—It is not desirable, certainly ; but I never cast a horse for it.

Lord Tenterden, after Sir James Scarlett had replied to the defendant's evidence, stated, that the question for the jury was, whether the horse was unsound, or laboured under a defect which could be properly called a vice. His Lordship was about to sum up the evidence, but

The jury interposed, saying their minds were made up.

Lord Tenterden.—You find for the plaintiff, gentlemen ?

A Juror.—Yes, my Lord.

A verdict was then entered for £41..0s..6d., the difference between the price which the plaintiff had paid for the horse and the net proceeds of the sale.

ALTERATION OF STRUCTURE,

THE CONSEQUENCE OF PREVIOUS DISEASE, ATTENDED BY LAMENESS, AND WHICH MIGHT AGAIN PRODUCE LAMENESS IF THE HORSE WERE HARDLY WORKED, UNSOUNDNESS.

BALDWIN *v.* DIXON.

THIS was an action against Mr. Dixon, the proprietor of the horse-repository in Barbican, on the warranty of a horse which he sold to the plaintiff, a coal-merchant at Limehouse, in May last. The warranty was, that the horse was sound.

Sir J. Scarlett stated the case for the plaintiff, and called several witnesses, who proved the following facts: —

The horse was put up for sale by auction at the defendant's repository on the 28th of May last, and bought in. The plaintiff afterwards looked at it, and bargained with the defendant for the purchase of it by private contract. The plaintiff observed that the horse "went weak," and favoured one foot more than the other; it rested its fore foot on the off side. The defendant accounted for that by saying it was a young horse, and had been weakened by being driven across a hard country, but that in the course of a week or ten days it would bé as fresh as possible. He added, that he would warrant it sound to ride or drive. On the following day (the 29th) the plaintiff went again to the repository, and purchased the horse for £22..10s. The defendant accounted as before for its apparent lameness, by saying it had been hard driven. When taken home, and for some time afterwards, its lameness was still observable. The plaintiff took it out occasionally, but it appeared to be incapable of much exertion; and on the 15th of June it was examined by Mr. Field, the veterinary surgeon, who pronounced it to be unsound in the fore off leg. It was then taken with a written certificate from Mr. Field to the defendant, who was desired to receive it back, but he refused, saying it was perfectly sound. The plaintiff turned it out to grass for about a month, and in the mean time provided himself with another horse.

Mr. *James Turner*, who had very carefully examined the horse, stated that he observed it pointed its fore foot, which was an indication of pain. There was a slight enlargement of the coronet, and the foot was contracted, but the animal was perfectly free from lameness at the time he saw it. It was capable of performing at slow work very well; probably about six or seven miles an hour. With slight work, just so much as was sufficient to exercise it properly and keep it in health, it might not exhibit any lameness at all; but if it performed any great

extent of exertion, it would, and the lameness would become worse. Witness was of opinion, that the foot had been contracted for many months.

Mr. *Field* confirmed his certificate of the unsoundness, and stated, that when he examined the horse on the 15th of June, it was then very lame, and his opinion was, that its recovery was doubtful. He had examined it again on Friday last. It was free from lameness then, but there was an enlargement of the coronet, and a pointing of the leg, and also a discolouration of the sole to a considerable extent. The appearances were those of a pre-existing disease.

Mr. *Campbell*, in addressing the jury, raised several points for the defence: first, that the horse was sound; secondly, that by the conditions under which it was bought, the plaintiff was not at liberty to return it after keeping it beyond the day next following the purchase; and thirdly, that by keeping and using it after having obtained a certificate of its unsoundness, he had waved his right of action.

In support of the first ground of defence, the learned counsel called *Nathaniel Welton*, the person from whom the defendant had purchased the horse only two or three days before the sale, to the plaintiff. He stated, that he purchased this and another horse of a breeder in Suffolk, and sold it to the defendant in a lot of seven horses, under a warranty of soundness. It was brought from Suffolk on the 26th of May.

Mr. *Sewell* stated, that he examined the horse on Monday last; that it did not then exhibit any symptoms of lameness or unsoundness. He admitted, however, that the coronet was enlarged, "as far as the structure was concerned," and that the foot was slightly contracted. If the horse were driven at the rate of so much as 12 miles an hour, he thought it very likely that the lameness would come on. The horse was worth now about £20. [One of the other witnesses had stated that it was worth about £10, and another said £15.]

Mr. *George Fenwick*, who had also examined the horse on the preceding Monday, stated that it was quite sound. It would go, he thought, 10 or 12 miles an hour. He ascribed the fact of its pointing its fore foot (which it still continued to do) to its having been improperly shod.

The defendant's clerk, *Thomas Siers*, and several others who had seen the horse before it was sold to the plaintiff, stated that they had not noticed any appearance of lameness. The defendant's foreman admitted that he had represented it to be an "out-and-outer," and that it would go 13 miles an hour, but he said he did not state this on his own authority. It was stated

also that the plaintiff did not object to the horse on account of lameness or unsoundness, but merely that it was too slight a horse for his purpose; that it "had not corporation enough" for him. One witness stated, that, about two months ago, he saw the plaintiff riding it, at 10 o'clock at night, at the rate of 14 miles an hour.

It was proved, that written conditions of sale at the defendant's repository are affixed on each of the stables, and that one of those conditions is in these terms:—"All horses sold either by public auction or private contract, warranted in any respect; and not answering such warranty, to be returned by six o'clock the next evening, or, in default, the purchaser will be obliged to keep them with all faults." This was relied on as the second ground of defence, the plaintiff not having required the defendant to take the horse back till about a fortnight after the purchase.

Lord Tenterden, in summing up the case to the jury, said, that he was of opinion, in point of law, that the printed condition, if applicable to any case, could not apply to the present, the defendant's representation at the time of the sale being, that the slight lameness which the animal then exhibited would disappear in the course of a week or ten days. With respect to the plaintiff having kept the horse after it had been certified to be unsound, that was a circumstance that could not affect the verdict; it could merely go in reduction of the damages. As to the question upon the warranty, all the witnesses had concurred in stating that the cornet was enlarged, and that the foot was contracted; and it appeared that although the horse might, if worked only gently, exhibit no symptom of lameness, yet, if put to much exertion, it would become lame, and would consequently be unsound. The jury were to say whether those symptoms and that unsoundness existed at the time of the sale; and if they thought they did, then the plaintiff would be entitled to their verdict for the difference between the present estimated value of the horse and the price which the plaintiff gave for it, with some small addition as a compensation to him for having been deprived of the horse during the month it was sent out to grass.

The jury found for the plaintiff—Damages £18.

Miscellanea.

A Hint to Veterinary Medical Witnesses.

[Extracted from one of Mr. Amos's Lectures on Medical Jurisprudence at the University of London.]

I shall have occasion frequently, in the course of my lectures, to advert to the subject of the demeanor of medical witnesses. The hour will just allow of me, this evening, adverting to one piece of advice; which is, in the witness-box, to drop as much as possible the language which is known only to scientific men, and to adopt that which is in popular use. If you have occasion to speak of a person fainting, do not say, as I have heard it said, that you found the patient in a state of *syncope;* and you must not expect a court of justice to understand you if you talk of a person being *comatose,* or of the appearance of his stomach after death being *highly vascular,* or of your having discovered poisonous ingredients in his intestines by means of a *delicate* test. The judge and counsel are, generally, very shallow men of science, and it is a great advantage for them to raise a laugh at persons whom they would represent to be using hard names for common things. Veterinary surgeons are a great game for counsel; as I remember, in particular, a veterinary surgeon who, when cross-examined by Sergeant Vaughan, was so unfortunate as to make use of the term "suspensory ligament," which the sergeant interpreted "a hangman's noose."—*Medical Gazette.*

The Royal Blacksmith.

[Seward's Anecdotes, vol. iv, p. 3.]

Charles the Ninth of France built a forge near his palace at Fontainbleau, "where," says Brantôme, "I have seen him hammer out guns, horse-shoes, and other things in iron, as well as the strongest and most expert smith."

Erratum.

In Mr. Turner's Paper on Shoeing, p. 130, line 30, for "uniting" *read* "limiting."

THE

VETERINARIAN.

VOL. IV. APRIL, 1831. No. 40.

ANATOMY OF THE HORSE.

[Continued from p. 126.]

5.—POSTERIOR ILIO-FEMORAL REGION.

THE muscles of this region occupy the outer and posterior side of the haunch.

BICEPS ABDUCTOR FEMORIS.—*Ischio-tibialis Medius* vel *Posterior.*

Situation.—Postero-external side of the haunch and thigh; where, being superficial, its course is well marked in the living animal.

Attachment.—Superiorly, to the lateral and posterior parts of the spine of the sacrum, and some of the upper pieces of the os coccygis; to the sacro-sciatic ligaments; to the tuberosity of the ischium, and to the faschia lata. Inferiorly, it is split into two portions, one of which is attached to the patella and its external ligament; the other (through the intervention of an aponeurotic expansion) to the ridge upon the upper part of the tibia, and to the faschia covering the leg.

Relations.—Externally, with the faschia and skin; internally and superiorly, with the gluteus maximus; internally and inferiorly, with the gastrocnemii; anteriorly, with the external trochanters, major and minor, and with the body of the femoral bone; posteriorly, with the tuberosity of the ischium and semitudinosus.

Structure.—Fleshy; surfaces, aponeurotic. Attached by a broad flat tendon to the tuberosity of the ischium; by a more slender one to the trochanter minor externus; by a broad, flattened, and thick tendon, invested by some few fleshy fibres, to the patella and its ligament; and to the tibia and tibial faschia by a broad expanded aponeurosis. The inferior division is, at its upper part, united with the next muscle by intermixture of fleshy fibres.

Action.—The two divisions of this muscle will operate differently. The anterior or superior one will assist the rectus and vasti in extending the thigh; but the posterior one will contribute towards its flexion. They will both co-operate in abducting the limb; also in rotating it inwards—the hock at the time turning outwards.

SEMITENDINOSUS. }
SEMIMEMBRANOSUS. } ADDUCTOR TIBIALIS.

Ischio-tibialis Internus.

Situation.—Posterior side of the haunch and thigh.

Attachment.—Superiorly, to the postero-lateral part of the spine of the sacrum; to the two or three uppermost bones of the coccyx; and to the antero-inferior side of the tuberosity of the ischium. Inferiorly, to the superior and antero-internal part of the tibia; directly opposite to the attachment of the lower head of the biceps abductor and tibial aponeurosis.

Relations.—Posteriorly, with the faschia and skin; anteriorly, with the tuberosity of the ischium, os femoris, and gastrocnemii; externally, with the biceps; internally, with the adductor tibialis.

Structure.—This is a long cylindroid muscle, composed of two parts, one coming from the sacrum, the other from the ischium; both of which are united below the tuberosity. The superior attachments are both fleshy and tendinous. From the inferior proceeds an aponeurotic expansion, contributing towards the tibial faschia.

MUSCLES OF THE THIGH AND LEG.

These muscles are invested and confined down in their places by the crural or tibial faschia, which is in part an extension from the faschia lata, and in part a production from those femoral muscles whose tendons or aponeuroses descend upon the leg; such as the adductor magnus, biceps, and adductor tibialis. The muscles themselves (those now under consideration), being collected together in two packets or parcels, separate and distinct from each other, the crural faschia admits of an anterior and a posterior portion; one investing the muscles in the anterior crural region, the other in the correspondent posterior region. The former has for its principal places of attachment the patella; the upper and lower ends, tubercle, and spine of the tibia; and the anterior annular and lateral ligaments of the hock; in front of which it is continuous with the tendinous vaginæ, formed for the passage of the extensor tendons: on the outer side this faschia sends a broad process inward, between the extensor pedis and peroneus, which is fixed to the body of

the tibia, inclosing the latter muscle in a complete sheath. Beyond this, the anterior faschia becomes continuous with the posterior.

The chief attachments of the posterior division of the faschia are, the condyles, and postero-inferior part of the body of the femoral bone; the postero-lateral parts of both extremities of the tibia, and the entire inner side of its body; the lateral ligaments of the hock; and the tendinous point of the os calcis.

1.—ANTERIOR FEMORO-CRURAL REGION.

Of the muscles situated in this region, two are extensors of the leg and foot, and at the same time aiders in the flexion of the hock: the other is a direct flexor of the hock. They are all three bound down to the tibia by a strong tendinous faschia.

EXTENSOR PEDIS.—*Femoro-prephalangeus.*

Situation.—Superficial: anterior part of the leg.

Form.—Elongated; fusiform: flattened from before backwards.

Attachment.—Superiorly, to a roughened depression upon the antero-inferior part of the external condyle of the femoral bone. Inferiorly, to the coronal process of the os pedis, to the superior edge of the bone in the interval between the lateral cartilages.

Relations.—Anteriorly, with the faschia and skin, and the aponeurotic tendon of the biceps; postero-externally, with the peroneus; postero-internally, with the flexor metacarpi; postero-superiorly, with the capsular ligament of the stifle joint, the tendon passing through a groove upon the front of the tibia.

Structure.—The muscle commences, superiorly, by a small flat tendon, which is common to it and the flexor metatarsi. Upon the tibia it becomes fleshy, exhibiting two or three thin tendinous intersections, together with aponeurotic surfaces. A little above the hock the fleshy belly ends in a flat tendon, which takes its course in front of the hock through a theca prepared for it, and upon the cannon (about one-third of its length downward) enters into union with the tendon of the peroneus, and so intimately that the two tendons appear but as one until they have descended as low as the fetlock joint, over which they disunite and again run separate. As it passes the front of this joint, the extensor tendon expands itself, and continues to do so to its termination.

Action.—In consequence of this tendon being bound down upon the hock by the sheath through which it passes, it will have effect in flexing that joint, at the time it is performing its own

special function, the extension of the foot, as well as the pastern and fetlock joints.

*** Immediately beneath the bend of the hock, from the antero-superior part of the metatarsal bone, issues a thin layer of fleshy fibres, enveloped in cellular substance, and concealed in part by the tendon of the above muscle, with which (about one-fourth of the length of the cannon downward) they form a union, and make some addition to its substance. In action, these supplementary fibres will brace the tendon; and are probably furnished to prevent it from being compressed by the flexion of the hock.

PERONEUS.—*Peroneo-prephalangeus.*

Situation.—Antero-external side of the limb.

Form.—Cordiform; elongated; flattened from before backwards.

Attachment.—Superiorly, to the head of the fibula, continuing its attachment for the entire length of that bone. Inferiorly, the same as the foregoing muscle.

Relations.—Externally, with the faschia and skin; internally, with the fibula; anteriorly, with the extensor pedis; posteriorly, with the flexor pedis.

Structure.—Superior attachment, fleshy and tendinous, from which a fleshy belly descends nearly the whole length of the tibia: a slender tendon, in form a flattened cord, then commences, which passes through a distinct tendinous sheath, across the front of the hock, and upon the cannon bone forms a connexion with the tendon of the flexor pedis.

Action.—It will co-operate with the extensor pedis.

FLEXOR METATARSI.—*Tibio-prematarseus.*

Situation.—Antero-internal side of the limb.

Figure.—Bifurcate at either extremity.

Attachment.—Superiorly, in common with the extensor pedis, from the external condyle of the os femoris; and from a broad triangular excavation marked upon the superior and antero-external part of the tibia. Inferiorly, to the head of the large metatarsal bone, and to that of the internal small metatarsal bone.

Structure.—The tendon by which the flexor pedis is attached, superiorly, enters afterwards into the composition of the present muscle, whose fleshy belly, although in intimate connexion with the tendon, is placed behind it. In front of the hock, the fleshy part ends in a small cordiform tendon, which is enveloped by a flattened one that runs in front of it, and indeed forms quite a sheath for it. Having emerged from its sheath, however, it splits into two divisions, which are left with only cellular coverings.

Action.—To flex the hock; in doing which it will have a tendency to turn the joint inwards.

[To be continued.]

Communications and Cases.

Ars veterinaria post medicinam secunda est.—VEGETIUS.

CASE OF RUPTURE OF THE PERFORANS TENDONS.

By Mr. R. PRITCHARD, *V. S., Wolverhampton.*

A BAY cart horse, six years old, the property of Messrs. Joseph and Samuel Norton, of this town, was attacked on the morning of the 10th of February last, with acute inflammation in all four feet. He had not been at work for some weeks previous to this, in consequence of lameness in the near hind leg, and had (from the information I obtained) been stabled at night, and occasionally turned into the field during the day; his feed, hay with wet bran. In the course of this lame period no reference to the state of his feet had been made, the shoes remaining on some eight weeks; and his soles had become morbidly strong from want of paring. On the morning of the 10th he was sent to work. The waggoner observed him a little lame in the off fore leg, but not so much so as to prevent his taking him on his journey; but by the time he had travelled two miles on one of our public roads, the horse appeared as if suddenly attacked by some disease, which apparently robbed him of the use of his limbs, to use the man's expression to me; and he was consequently obliged to leave him on the road. I was requested to attend him; and on examination found his feet to be the seat of acute inflammation. He was standing upon his legs, and had not made one attempt to lie down. It was with great difficulty he was made to move, and when he did his agony was very much increased. His suffering appeared of the most excruciating description: his pulse was quick and hard; his eyes red, full, and watery; every external part felt hot; the plantar arteries beating with considerable force; a panting respiration, with large drops of perspiration rapidly following each other from his belly, sheath, and thighs. It here was a painful necessity to compel him to return home the two miles he had come, notwithstanding the agony and consequent mischief the journey was calculated to produce, as we could get no convenience for his reception. On his arrival at home he did not appear so much the worse for his walk as I had anticipated he would have done. His pulse was somewhat quicker, mouth parched, tongue dry; refuses all food, but drinks with avidity. To trouble your pages with a full detail of the treatment and symptoms throughout, I consider un-

necessary, and probably occupying a space that may be more intelligibly and interestingly engaged; suffice it to say, removing the shoes, paring the soles, copious bleeding from the toes, femoral, and plate veins, placing the feet in warm water, followed by emollient poultices, physic, and sedative medicine, and, when the horse was upon his legs, supporting his weight by suspension, constituted the principal treatment; and the attendant symptomatic fever kept pace with the local pain. There was no mitigation of symptoms up to the evening of the third day; when, on examining the feet, I observed a groove or furrow around the coronets of the fore feet, with a turning up of the toes when weight came upon them. On further examination, I found this to arise from a loss of the perforans tendon, the coffin bones maintaining their proper position. On the following morning the same occurrence was observable in both hind feet. I now informed the owners of the horse that he was become for ever useless; and at my request he was destroyed.

On examination of the fore feet, I commenced by detaching the external walls, and found the whole laminæ in perfect health, and with difficulty could separate the horny and sensible parts. On detaching the horny sole and frog, I observed considerable inflammation and extravasation, both in the substance and externally of the sensible frog, particularly at that part situated under the vaulted arch of the coffin bone, where the perforans tendon is inserted: there was no inflammation of the sole, except at its junction with the sides of the frog, and the laminæ of the bars were uninflamed. On making a transverse incision through the anterior part of the frog, I exposed a cavity filled with a coagulum of arterial blood, and formed by a breaking away of the tendo perforans from its insertion into the coffin bone; with small portions of the external plate of the bone attached to the extremity of the tendon, and small shreds of the tendon attached to the bone. I then removed the os coronæ from its articulation with the coffin bone, and there saw that the inferior navicular ligament was also broken from the coffin bone, the navicular bone having receded from the os pedis nearly half an inch. The articular surfaces forming the coffin joint were a good deal reddened with inflammation; the navicular joint capsule contained a clot of arterial blood, and its synovial membrane was inflamed: the capsule was entire, the breaking of the inferior navicular ligament had not opened its cavity, so that the blood found in it must have been deposited by its secreting vessels. The bursa in front of the perforans tendon, between it and the superior tip of the os coronæ, was inflamed; all the interstitial cellular substance surrounding the coffin and pastern

joints, nearly as high up as the fetlock, was gorged with black blood: such was the state of the two fore feet.

In the hind feet, the perforans tendons were broken from their insertions, precisely as in the fore feet; but the inferior navicular ligaments had not given way, nor were the articulating surfaces of the coffin joint inflamed: the navicular joint capsules were inflamed, but did not contain extravasated blood; nor did the surrounding cellular substance contain so much extravasated blood; and in these, as well as in the fore feet, the laminæ and sensible soles were uninflamed, and firmly attached to their horny investment.

This, to me, is certainly a very singular and novel case; and, as far as my knowledge goes, unprecedented, as regards the predisposing cause to an attack of inflammation in the feet, which is sufficient in the history of the case: but to account for the rupture of the tendons, and that too in every foot, I am at a loss. There appeared to have been no alteration of structure antecedent to the attack; no softening of the bones, ligaments, or tendons; the tendon itself was not inflamed on examination, nor had inflammation proceeded to suppuration in any part; and in the hind feet rupture of the tendons was nearly unattended by inflammation in the other parts of the foot, or the slightest change from health, excepting a strong sole. The horse's exertion while at work had been but trifling; and I think any professional man, divested of previous information, on examination of the feet after death, would have taken the rupture of the tendons to have been the origin of the case.

THE DUTIES OF A REGIMENTAL VETERINARY SURGEON.

To the Editors of "The Veterinarian."

Gentlemen,

The remarks in The Veterinarian of last month, by your Correspondent, "An Army Veterinarian," on the "Duties of a Regimental Veterinary Surgeon," attracted my attention, and have recalled a subject I touched upon on a former occasion. In regard to his observations, while I agree in opinion with him throughout, I am induced more particularly to refer to his strictures on the official veterinary registries as directed to be kept in regiments. The General Order of 1818, ordering such to be kept, was certainly an improvement on the prior absence of all instructions for any documents whatever to be forthcoming; but "An

Army Veterinarian" very clearly makes out, that room for farther improvement on the present system still exists. The object that Order had in view was, I think, not fully achieved under the detail it marked out. I do not presume to come forward to point out the mode in which the hiatus can be best filled up; but I may be permitted to shew the plan I adopted on getting veterinary charge of a regiment in India.

In THE VETERINARIAN of January I gave a form of a regimental return of sick horses. Such a form, simply and compendiously enough, indicates the past and present state of diseases and other casualties in a regiment. A book should be kept, in which the casualties being entered as they occur, from it, at any time, can be readily extracted a "present state;" or a copy of the details for a week, or a month, or six months, forms a Return for the period, as it may be. To each "*Half-yearly Return*" an "*Abstract*" should be appended, in arrangement similar to that now in use, but having its "*nosology*" more scientifically developed. Of cases of minor importance, a mere notation of the heads of treatment may be written down under "Remarks and Index to Case-Book;" while the history of more important cases should be carried in detail to another book, the "Case Book." Both books should lie for reference to by the Farrier Major, so that the orders or instructions of the Veterinary Surgeon can never be infringed upon or mistaken without culpable negligence. The latter, in going round sick stables, has recurrence to his note-book, and from it daily enters his remarks in the "Case-Book." These books, the "*Register and Return-Book of Sick and Lame Horses*," and the "*Case-Book*," being kept with the regiment from year to year, always afford a circumstantial and perspicuous reference to any case or period. To clearly convey the form of Case-Book I adopted, I subjoin an extract of two pages, and which, with the "Form of a Regimental Return," in the January Number, will give an outline of the whole system of official registry of veterinary transactions in a regiment I have sought to submit.

I may remark, that "gram" is a kind of pea on which horses are chiefly, with root-grass, fed in India; and a "seer" is equivalent to two lbs.

JOHN RALSTON,
V. S. Madras Cavalry.

Scotland, 18th March, 1331.

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Sick Lines. —*Regt. Lt. Cav.* | *Diseases and Treatment.* | *Camp . . 1829.*

Case 1.	Troop F.	No. 54.	Colour Bay.	Admitted Dec. 1st, 1828.	Discharged Mar. 10th, 1829.

Jan. 12 EXAMINED this case to-day, on joining the regiment. The Farrier Major reported the horse to have been "sent in lame in the off-shoulder; supposed from a fall, or some accident at his picquets." Cannot discover any sufficiently unambiguous symptoms to indicate the shoulder as the seat of lameness: its obscurity leads me to be suspicious of the foot, though neither are there any conclusive symptoms discoverable there. The hoof is overgrown and neglected, and somewhat hot. "*Take the shoe off; pare the hoof rather thin, and rasp the quarters; put grass under the fore feet, and keep it moist. Bran*
13 *mashes preparatory for physic.*"——13th. "*Physic: aloës Barbad.* 3vj;
14 *sapo. dur.* 3iss, *gingib. pulv.* 3j, q. s *theriacæ* f. *bol.*"——Not acting
15 on the 14th——Nor on 15th. "*Allow* 1½ *seer gram and* 4 *seers bran*
18 *per diem.*"——18th. "*Physic as before, with an additional* 3 *of aloës.*"
20 Does not operate 19th; 20th. "*Blister coronet, off fore foot. Re-*
23 *duced his allowance of grass one half.*"——23d. "*Prepare him for phy-*
24 *sic: muzzle on from evening stables till* 6 *next morning.*"——24th.
25 "*Physic as before, with* 3 *more aloës* [*aloës* 3viij]."—Operating——26th. Bowels set. No improvement visible in his action. "*Put his shoes*
29 *on.*"—— 29th. The horse is very lame, and yet does not wince under any examination of the shoulder; nevertheless, I am induced to recur to the Farrier Major's report of the case in the first instance. "*Shave a considerable space around the point of the shoulder, and blis-*
Feb. 2 *ter.*"——2d. "*Physic as before.*"——3d. Operating.——4th. Set.——
13 5th. "*Blister the shoulder again.*"——Saw him out on the 13th: he
17 goes better, I think.——17th. "*Allow* 2½ *seers gram and* 3 *seers bran per diem. Let him be walked in hand for a quarter of an hour morning*
22 *and evening.*"——22d. He continues to improve in his action. "*Keep him out half an hour each time, walking and trotting gently, alternately,*
24 *for a few minutes.*"——24th. Lamer again. "*A dose of physic as be-*
26 *fore. Rest for a day or two.*"——26th. Operating.——27th. Set.——
Mar. 2 28th. Goes much better. "*Return to walking exercise.*"——2d. Goes
5 very well. "*Walk and trot him alternately in his exercise.*"——5th. Goes sound. "*Let a trooper ride him for an hour morning and even-*
10 *ing, and allow him* 5 *seers gram and* 2 *bran per diem.*"——10th. Sound. "*Discharge him for duty; but not to go out for 'schools' or 'field-days' for a fortnight.*"

I was not a little at a loss to assign the seat of lameness in this case; and only from the history of it by the Farrier Major was directed to the shoulder. The supposition of its being caused by a fall could not be relied on. I am inclined to think the attention which was all along paid to the feet was instrumental to the cure; for I think both shoulder and foot were implicated; and as in running, or making any exertion, any one may be thrown down, or strain himself, from a shoe, or otherwise cramping or torturing his foot, so I think it probable the state of this horse's feet conduced to the accident of the shoulder, and augmented the degree of lameness, and likewise complicated it.

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Sick Lines.—Regt. Lt. Cav. | *Diseases and Treatment.* | Camp . . 1829.

Case 44.	Troop A.	Transfer.	Colour Grey.	Admitted 29th May, 1829.	Discharged 5th June, 1829.

May 29 CAME into Sick Lines at eveniug stables, for excessive purging. The dejections are very frequent, but the horse does not seem in any pain, nor is his pulse accelerated. I am inclined to ascribe the affection to drinking freely of cold water in the morning after a field-day. "*Give a drench:* ℞. *cretæ pulv.* ℥iss, *tinct. opii* ℥iss, *aqua tepid.* ℔j, *M. f. haust. Clothe warmly. Boil* 5℔ *of rice in* 5 *gallons of water; of this give him frequently two or three pints: drench if necessary.* 30 *Give nothing else to eat or drink to-night.*——30th. Much as he was, this morning. Has been purging all night. "*Repeat the drench as above. Allowance him on* ¾ *of a seer of boiled gram in a small bran mash, three times a day, and a small quantity of hay occasionally. Continue giving the rice-water.*" This evening the purging has moderated.——31st. The excessive dejections have ceased. "*Double his allowance of boiled gram.*"——1st. "*Give a dose of physic:* ℞. *aloës Barbad.* 3vj, *saponis duri* 3ij, *gingib. pulv.* 3ij, *sodæ sub. carb.* 3vi, *f. bol.* ii."——2d. Operating——3d. Set. "*Increase his gram two seers more per diem.*"——5th. "*Discharge him to duty.*"

Case 51.	Troop C.	No. 14.	Colour Bay.	Admitted 2d June, 1828.	Discharged 19th June, 1828.

June 2 CAME into Sick Lines this evening very lame both fore legs, from an extension of the sheaths of the flexor tendons. "*V. S.* ℔iiij *from the vessels over the side cartilages of each foot. Put each limb in a large poultice, extending up to the knee. Give a brán mash to-night, and after put on the muzzle till* 6 *to-morrow morning, when administer a dose of* 3 *physic.*"——3d. "℞. *Aloës Barbad.* 3vij, *sapo. duri.* 3ij, *gingib. pulv.* 3j, *q. s. theriacæ ut f. Bol. Give* 2 *seers gram and* 4 *seers bran per* 4 *diem.*"——4th. Operating.——5th. Operating. "*Give rice-water for* 6 *drink.*"——6th. Set. He goes better, rather. "*Put on leg-bandages, and* 10 *keep continually wet with salt and water solution.*"——10th. Goes very much better. "*Give diuretic:* ℞. *sapo. mollis* 3ij, *resin. flor. pulv.* 3ss. 11 *ol. juniperi* 3j, *f. Bol.*"——11th. *Repeat bolus.*——12th. "*Repeat bo-* 13 *lus. Double allowance of gram.*"——13th. Much better. "*Sent to* 19 *walking exercise.*"——19th. Well. "*Discharge to duty.*"

MR. YOUATT'S VETERINARY LECTURES.

THE CRANIUM — THE FRONTAL BONES OF THE HORSE.

Gentlemen,

I HAVE felt considerable difficulty in arranging the course of lectures which I am about to attempt. They will treat of the Anatomy, Physiology, and Pathology of all our domestic animals, and chiefly as compared with each other; the difference of structure in each influencing the discharge of the respective functions, and more particularly varying the character and treatment of disease. If I were to commence with a long detail of the anatomy of each, we should have many a tedious lecture; and before we had half completed our account of the structure of so many patients, we should have forgotten several important points of comparison, and the impression of many minute yet important differences, affecting function, or more affecting disease, would be almost lost, or lost to useful purpose.

I at length determined to throw our lectures into *systems*, connected with, yet distinct from each other,—the sensorial, the circulatory, the digestive, &c. I shall consider, first, the structure of the parts concerned in the discharge of a particular function, and that in each of our patients. This will not occupy many lectures; and then, while the variety of structure in each is fresh in our memories, we shall be able to trace its connexion with the purpose for which each was designed, and the situation in which it was placed, and the food by which it was to be nourished; and we shall understand the necessary variation of function, and shall readily imagine and be prepared to guard against, or to remedy, the variation of disease. Thus we shall form a clear conception of our subject as we proceed; and although, in one course, we may not be able to get through more than two or three systems, we shall finish as we go on.

In pursuing our plan, I shall take the horse as our prototype, and shall give, to the full extent that is necessary for physiological and medical inquiries and purposes, a detailed account of the structure of the various portions of his frame. In other animals, the *differences of structure* will principally occupy our attention. The physiology, or the functions of the various parts, and the diseases of each, will be more equally considered.

We shall naturally and most advantageously begin with the SENSORIAL SYSTEM, the *primum mobile* of the machine. First: the brain, to which all sensation is referred or carried, and from which all voluntary motion is derived,—the fountain of *animal* life;—that mysterious organ on which depends our consciousness of surrounding objects, and all sensations of pleasure and

of pain; and on which, through every gradation of animated nature, comprising more numerous species and lower grades of being than some have imagined, depend, likewise, all the powers of mind and the capability of moral feeling. Next, the sources of *organic* life; whether that important nerve, proceeding from the ganglion at the base of the atlas [a dissection was here exhibited], or those innumerable radiations of nervous influence from the semilunar ganglion, and proceeding to every viscus and entwining round every vessel, and by deriving power from which the heart beats, and the lungs heave, and the stomach digests, and the capillaries secrete,—unconnected with sensation, unless by anastomosis, with the spino-cerebral nerves—and independent of the will: or whether that newly-discovered system of nerves—newly-discovered as to function—partly involuntary and partly under the influence of the will—acting when we are unconscious of their action, and deriving their sensation from union with the spino-cerebral—proceeding from the lateral portion of the medulla oblongata [the brain and spinal cord were here shewn], and occupying the lateral column of the spinal cord—a kind of neutral ground—communicating to or deriving assistance from the motor and the sensitive columns on either side—given first to the organs concerned in the function of respiration, and descending to every viscus connected with organic life:—these, together, constitute a most interesting although an obscure system; and we must obtain some comprehensive knowledge of them before we are qualified to enter into the full consideration, or to understand the functions of any portion of the frame.

We commence with the BRAIN. It is enclosed in a bony cavity situated in the postero-superior part of the head; of an ovoid form; rounded above, flattened below [the cranial cavity was shewn], broader anteriorly than posteriorly; longer than wide in the proportion of seven to four, and its height less than its width.

It is composed of several bones,—the two frontals forming the anterior portion of the roof, and the antero lateral portions; the two parietals occupying the middle of the roof, and the superior portion of the side walls; the two temporals, both squamous and petrous, found at the inferior portion of the side walls; the occipital completing the posterior and upper part of the roof, constituting the whole of the back wall and a portion of the floor; inferiorly and anteriorly, both on the side wall and the base; the ethmoid, and filling the middle of the floor, the sphenoid.

The cranium was formed of so many bones, not so much for the safety of the mother in the act of parturition, because, from

the horizontal position of the abdomen of the quadruped, the pelvis may be larger and the passage more direct, and the labour easier, without danger of previous abortion; but because the young quadruped, at least among graminivorous animals, although not abandoned at the moment of birth, is yet made to shift a great deal for himself, and is exposed to considerable danger; and all these bones will afford so many distinct nuclei for the more rapid formation of bone, to defend this most important of all organs.

I will describe each of these bones separately.

The FRONTAL BONES occupy that portion of the head and face which is called the forehead. They are most irregularly shaped, and difficult to describe. We find one on either side of the forehead, and they are united by a long straight suture: this suture, however, is not of the same character through its whole extent. It is dove-tailed above—that kind of union which the mechanic would adopt to unite, in the firmest manner, two portions of a substance that is hard and not very elastic. This dove-tailed suture is found only on the upper part, where the frontal bones cover the brain. Soon after the frontal sinuses commence the suture is of a much simpler kind, and not so strong. It is a mere approximation of the edges of the two frontals. Then we have, at first starting, a proof of design. We have an illustration of that contrivance, and adaptation to circumstances, which will again and again, and again, be brought before us in more interesting points of view. Peculiar strength of union is given where an important organ is to be defended,—the suture is intricate and laboured; where less important parts are to be defended, it is of a far simpler character.

This suture is termed the frontal, and is a continuation of the nasal suture.

The Lecturer then described the connexion of the frontals with the surrounding bones—with the parietal above by an irregular curved line—first receiving a slight projection of the parietal, and then encroaching on the parietal; and the suture at this place, between the frontal and the parietal, being peculiarly adapted for strength—a *squamous* suture—one bone overlapping the other, affording a double defence, and because the brain lay underneath this spot—another illustration of design.

He then traced a squamous process of the frontal ascending superiorly and posteriorly between the parietal and temporal bones; the frontal then taking a sudden direction downward into the temporal, skirting the squamous portion of the temporal bone in the remarkable depression above the eye, or great orbital fossa. He spoke of this pit as indicating, with some considerable latitude, the age of the horse. The coronoid process of the lower jaw played within it, and a dense membrane

separated it from the orbit of the eye. To give free play to the bone, and to afford a cushion on which the posterior part of the eye, or this membrane, might rest, a great deal of cellular membrane and fat was placed in this cavity. While the animal was young, and so long as the secretions were abundant, this cavity was well filled; but when, as old age came on, the absorbent vessels were more active than the nutritive ones, the fat was gradually removed, and the falling in of the skin of the forehead indicated the loss of substance underneath, and the progress of age. It is said that some of the lower class of horse-dealers puncture the skin, and blow into the orifice with a tobacco-pipe, or small tube, until this depression is almost filled up. In slang language, this is *puffing the glims*, and, with the aid of a bishopped tooth, may give a false appearance of youth that may deceive the unwary.

The suture between the frontal and temporal was described as exceedingly strong, to prevent the walls of this important arch from bulging out.

The Lecturer then shewed the wing of the æthmoid bone, received into a kind of notch between two portions of the frontal, and, immediately below this notch, and on the suture, the *foramen orbitale internum* for the passage of the *lateral nasal* branch of the fifth pair of nerves. He next traced its connexion with a small portion of the wing of the sphenoid bone, it now taking a direction anteriorly, and, pursuing the same direction, skirting the orbital process of the palatine bone, sending a small process between the lachrymal bone and the superior maxillary, and then taking a direction anteriorly, until it arrived at the side of the excavation for the lachrymal sac, then suddenly turning upward and emerging from the orbit at the inner canthus or angle of the eye.

He now traced the bone upward, as forming the upper part of the inner wall, and the whole of the roof of the orbital cavity. This is called (he said) the external orbital process, and reaches to the zygomatic arch. It is convex outwardly, and concave inwardly. Its concavity receives, superiorly, and nearly over the outer angle of the eye, the lachrymal gland. Towards and over the inner angle is a remarkable depression, for the reception of the pulley of the Trochlearis or superior oblique muscle. The arched form of this process gives it the strength that is required to protect the eye; and especially requisite, as the roof of the orbit is a part exposed to considerable danger from accident or brutal violence. Mr. Pritchard, of Wolverhampton, had a case of fracture of the orbit, which he treated with so much judgment, and such complete success, that I will relate it to you. A mare had a blow over the eye, which fractured the orbit, from the superciliary foramen to the outer angle of the eye. The detached

portion of bone, together with the divided integument, hung over the eye, so as to intercept vision. He replaced the bone, brought the edges of the wound together, and confined them by pins of silver wire; and although there was considerable inflammation for a while, the bones united, and the wound healed in a fortnight.

There are numerous small foramina running along the edge of the superciliary ridge into which minute vessels dip to give nourishment to the bone; and a few of them penetrate through the bone. Farther back is a larger hole, called the superciliary, or supra-orbital foramen, and through which the supra-orbital artery and nerve come out. The supra-orbital artery is a branch of the internal maxillary, given off from the bottom of the orbit, whence it climbs the inner and upper part of the roof, to reach this foramen, and supplies the skin and cellular membrane of the forehead, and anastamoses with the anterior auricular and temporal arteries; thus establishing a communication between the internal vessels of the orbits and the external ones of the temple and ear; it is soon lost in these anastamoses, and on the cellular membrane of the forehead.

The nerve is a branch of the ophthalmic division of the fifth pair, given off likewise deep in the orbit, climbing the roof, and passing through this foramen to be distributed over the forehead and upper eyelid.

The orbital process terminates on the zygomatic arch in a kind of tuberosity, and contributes materially to the strength of that arch. Strength is there required.

The coronoid process of the lower jaw works within it. Its free motion must be defended; for if the horse cannot eat, he no longer lives. It is also a part much exposed to danger and injury. It would be sufficient to mention the brutal violence with which a tight collar is sometimes forced on: but I shall have more to say of the zygomatic arch when I have described the other bones which help to form it.

I return to the inner angle of the eye, to which I have followed the connexions of the frontal bone. There it is in union with, and superior to, the upper external process of the lachrymal bone, which it seems to receive into a kind of curve, and to be united to it by a dove-tailed suture, and which deserves examination, for it is both a dove-tailed and a squamous one. The process of the lachrymal bone overlaps the frontal, effectually to secure this part of the orbit, and forms a curious contrast with the suture that occurs almost immediately afterwards between the frontal and nasal bones, where there is only the lower part of the frontal sinus to protect.

A small process of the frontal now runs between the lachrymal

and nasal bones; an irregular suture connects the frontal and the nasal bones; and we at length arrive at the other frontal bone, and the suture, with the consideration of which we started.

There is but one muscle properly belonging to the frontal bone, which is the levator palpebræ superioris—the raiser or corrugator of the upper eyelid, which is a very thin muscle, arising from an aponeurotic expansion on the forehead, and is inserted into the superior part of the upper eyelid, towards the inner angle.

The frontal bones differ materially in form and development in different breeds of horses. As a broad and angular forehead in man is supposed to be connected with courage and intellect, so the angular projection of the orbital processes, or, in other words, the breadth of the forehead, distinguishes the spirited and noble blood-horse from the dull and stupid dray-horse.—[The Lecturer here produced some drawings of the heads of different breeds of horses, and also the crania of the blood-horse, the half-bred, and the cart-horse, and directed his class to compare the long face and narrow forehead of the last, with the short face and expanded forehead of the first, and the medium character of the second.]

The frontal bone, through the greater part of its extent, consists of two plates, or tables, irregularly separated from each other: the inner plate recedes, and thus the *frontal sinuses*, or cavities, are formed. They are perfectly divided from each other by a thin plate dipping down from each, at and along the frontal suture, and uniting to form a septum of some thickness. This septum appears, in situation, to be a continuation of that of the nose. There are other imperfect septa, which divide the sinuses into cells, yet still communicating with each other. The frontal sinuses extend from an imaginary line drawn from the middle of one orbital fossa to the other, to another line supposed to be drawn from the inner angle of one eye to the opposite one. They are deepest at the centre, and there sometimes more than an inch in depth; the point of greatest depth is at the middle of an imaginary line drawn from one foramen super-orbital to the other. In young animals, the sinuses are very small; but they increase with the age of the animal, until, in an old horse, they extend through the whole of the frontals and a portion of the parietals.

Although the frontal sinuses do not communicate with each other, they communicate with the maxillary sinuses, and those of the sphenoid and æthmoid bones, and, by means of the maxillary sinus, indirectly with the nasal cavity, into which this sinus opens under the superior turbinated bone, by a kind of valvular aperture. The frontal sinuses are lined by a continuation of

the membrane of the nose, and therefore frequently participate in all the affections of the nose. Their use is somewhat obscure; the most probable supposition is that they are connected with the voice; its convolutions, like those of a French horn, rendering the voice clearer and more sonorous.

The situation of the frontal sinuses is indicated by small elevations or bumps. This is also evident in the sheep and the dog, but not in the horse. [The different crania were exhibited].

An important use is occasionally made of the knowledge of the situation of the deepest portion of the frontal sinuses. A horse is brought to us for our opinion as to the existence of glanders. There is no ulcer—either no enlargement, or a trifling one, of the submaxillary glands—no adherence of them to the bone, but only a slight discharge of some glairy, sticky matter from the nose.

If it is glanders, there will be extreme danger to the other horses, and it is necessary that the practitioner should decide as soon as possible. The most satisfactory proof would be the death of an ass or horse, otherwise condemned to perish, who has been inoculated with the matter discharged, and who will die in four or five days if the horse is glandered.

We may not, however, readily be able to procure a condemned horse, or even to purchase an ass; and if we could, we perhaps should have some difficulty in establishing our right either to destroy life, or to inflict suffering for such purpose. Now, the frontal sinus on either side communicates with the maxillary sinus, or rather the maxillary sinus is a continuation of the frontal inward and downward; and the maxillary sinus communicates with the sphenoidal and ethemoidal sinus; and from the whole of them there is an opening into the nasal cavity, between the bases of the turbinated bones, so that any fluid injected into the frontal sinus will pass into all the others, and escape through the aperture of the nose.

Then a hole may be opened with a trephine (not with the carpenter's instrument the spill-gimlet) into the central and deepest part of the frontal sinus on the suspected side. The extent of the sinus I have described, and the deepest part of it, will be near the septum, on a line drawn across from one foramen supra-orbitale to the other. The hole will be opened on this line, and about a third of an inch from the septum. If we were to make the aperture too high, we should open upon the brain; if too low, we should penetrate into the nasal cavity.

If a little tepid water is thrown into the opening, it will pass into all these sinuses, and wash out, or be tinged with their contents; and if glanders has long existed, although ulceration

may not appear on the visible part of the membrane of the septum of the nose, it will probably exist higher up, and there will be a collection of matter in some of these sinuses. Should the liquid come out mingled with pus, we are certain that there is ulceration somewhere, and probably the ulceration of glanders; if it be merely tinged with blood, or has only washed out a little mucus, we conclude that there is no ulceration, and probably no glanders. The experiment, however, affords no absolute proof either way, and is therefore not of the value which some have supposed: but its result will enable us to form a tolerably shrewd guess as to the state of the case.

It was formerly the practice to inject many liquids into the nostrils in this way, some of them harmless enough, but others most cruelly acrid; we have now, however, learned to attend to, and endeavour to combat the disease, and, comparatively, to disregard the symptoms.

As the frontal sinuses are lined by a continuation of the membrane of the nose, they will sympathise with many of the affections of that cavity; but that portion of the membrane is susceptible of an inflammation peculiar to itself. The disease is rare, and its cause has not yet been fully ascertained; I am nevertheless very much disposed to consider it either as metastasis of inflammation of the brain, or communication of inflammation from the brain by proximity of situation. The attack is usually sudden; the horse is dull, lethargic, almost comatose as in stomach-staggers. The first thing that excites suspicion of the actual character of the disease is heat in the situation of the frontal sinus, when the hand is placed on the forehead. The lethargy soon passes over, and a state of the highest excitation succeeds. The conjunctiva and the schneiderian membrane are injected—the pulse is hard and quick. The horse becomes violent and dangerous—he kicks, plunges, and, half conscious and half unconscious, endeavours to do all the mischief he can. The disease is now evidently combined with, or is essentially phrenitis. It is distinguished from rabies, by this half unconsciousness; and yet the horse is more disposed to *bite* than he is in pure phrenitis.

The disease is almost uniformly fatal. It rarely lasts more than eight-and-forty hours. The post mortem appearances are great inflammation of the membranes of the brain, with frequent effusions of blood. The sinuses are sometimes filled with coagulated blood. The brain seems to be affected just in proportion to the violence which the animal has exhibited. The mode of treatment will consist of copious bleeding—application of ice to the head, blistering the head—physic. The trephine is scarcely admissible, from the danger of producing greater irritation.

Sometimes the disease assumes a more chronic form. The inflammation runs on to ulceration of the membrane without this excessive cerebral disturbance. A purulent discharge then appears from the nose, evidently not of a glanderous nature, from its not being viscid, and none of the submaxillary glands being enlarged.

In both the acute and the chronic form, it is usually confined to one sinus. We are indebted to Mr. John Field, jun., for the principal knowledge we have obtained of this disease.

Fluctuating or encysted tumours are sometimes found on the frontal, nasal, lachrymal and superior maxillary bones, varying from the size of a small marble to that of a nutmeg. They consist of glairy fluid enclosed in a dense cyst. After a considerable time the cyst occasionally disappears, and the tumour becomes solid. They are oftenest found on half-bred horses. They will never ulcerate or be any serious nuisance, and should not be meddled with.

When they have long existed, they may by their pressure rouse the absorbents to action, and cause a portion of the bone beneath to disappear. I have seen this. The periosteum alone remained. I had once an annoying instance of it. I was requested to get rid of one of larger size than usual, and of long standing on the forehead. I was unwilling to dissect it out at once, and tried first what puncturing it would effect. I lanced it, and deeply, rather too deeply, for my instrument penetrated into the frontal sinus, there being no bone left to arrest its progress. It had been taken up by the increased action of the absorbents, caused by the long-continued pressure of the tumour. It was nearly two months before I could get this little wound to heal, and then it was apparently effected by granulations springing from the bottom of the sinus.

The inner plate of the frontal bone is divided into two unequal parts, by an irregularly formed lateral septum [a section of the head was here shewn]. The super portion forms the superior and posterior part of the floor of the sinus, and the anterior and inferior part of the roof of the cranium. The inferior portion forms the super portion of the roof of the nasal cavity; and the anterior and inferior part of the floor of the sinus.

The cranial portion of the frontal bone covers the anterior part of the brain; and there it is thickest and strongest, and especially thickest where strength is most wanted, namely, at the centre or roof of the arch, to the security of which, next to that of the base, the attention of the builder is directed. We there find a considerable crest or spine, extending from the cristo-galli of the ethmoid bone, along the frontal and the parietal bones to the tentorium.

In the centre of this ridge is a slight groove, for the r eception of the longitunidal sinus, and which groove may be traced along the whole extent of the parietal to the tentorium. The inner plate of the bone on either is studded with depressions corresponding with irregularities on the surface of the brain.

I have been compelled to detain you to-night with a dry detail of osteology, and so I am afraid I must for one or two lectures to come: after that, we shall probably be able to proceed more pleasantly together.

CRIB-BITING.

To the Editors of "The Veterinarian."

Gentlemen,

You have reported the case, lately tried in the Court of King's Bench (Paul *v.* Hardwick) of crib-biting being unsoundness, and you have commented briefly upon it; but you have not included in your account what, it strikes me, would have been Lord Tenterden's address to the jury, had not time and circumstances constrained his Lordship to suppress it. I therefore send you the oration, in hopes of seeing it in print on the first of April: that, being "April-fools'-day," may not be considered an inauspicious occasion to publish accounts which look but too much like making April-fools of us poor veterinarians altogether.

Your's,

ONE OF THE CLOTH.

Gentlemen of the Jury,

You are summoned together, on the present occasion, to decide on a point bearing upon veterinary science, of considerable importance in horse-traffic, not only from the annoying frequency of its occurrence, but also from the various and different lights in which it is viewed by professional men, as well as by horse-dealers and horsemen. And, gentlemen, I fear you will experience more than ordinary difficulty in forming your verdict on the case before you, not less from the conflicting and contradictory nature of the evidence (and that *professional* evidence, too) which you have just heard given, than from the nature of the case itself, which is one of that description that may be, or may not be, harmless or detrimental, depending upon its degree and duration, coupled with the circumstances by which it is attended. It is this importance, invested as it is in professional intricacy, that incites me to an attempt to see if I cannot be of some service to you in removing those obstacles that stand in the way of your verdict.

I need hardly inform you, that the professional evidence before you is of that irreconcilable nature, that, taken *en masse*, "it would puzzle a conjuror" to elicit any legitimate or rational conclusion whatever from it; but, should you feel yourselves at liberty to select the evidence of any one or even two individuals, to the exclusion of the others, you will find you are borne out by it, come to whatever conclusion you may. To exemplify this, I trust I shall be able satisfactorily to prove to you, that crib-biting may be viewed either as merely a habit, or as a vice, or as a disease; and afterwards abundantly to demonstrate to you, from the same chain of evidence, that it amounts either to unsoundness, or is perfectly consistent with the contrary or healthy state.

Crib-biting is a habit.

Mr. *James Turner*, V.S., has stated, "that crib-biting, in his opinion, was, in a greater number of instances, *a habit* contracted by imitation. It could not be considered as a vice, inasmuch as crib-biters were generally perfectly tractable to ride or drive, and they did no danger to their owners."

Mr. *Geo. Gosden*, V.S., has stated, that "crib-biting was neither a vice nor an unsoundness." "And my experience leads me to believe, that it generally arises from imitation."

Mr. *Lythe*, V.S., has stated, that "crib-biting was not a vice, unless it disposed the horse to some bodily mischief; and also that the *habit* arose frequently from want of food, and frequently from *irritation*;" and he mentioned an instance of the latter."

Professor Coleman has stated, that "horses had the *habit* of crib-biting in different degrees."

I shall next produce to you, gentlemen, evidence to shew that

Crib-biting is a vice.

Mr. *Bracy Clark* was of opinion, "that crib-biting was one of the *worst vices* in a horse. It had always been considered as a vice."

Professor Coleman.—"A crib-biter might be a *vicious horse*, but not necessarily so because he was a crib-biter."

Thirdly, I shall shew you, gentlemen, that

Crib-biting is both a vice and a habit;

or, if you please to have it so, *a combination of the two.*

Mr. *Sewell*, the *assistant professor*, has stated, that "crib-biting was a *vicious habit* in horses."

Fourthly, I shall prove to you, gentlemen, that

Crib biting is a disease.

Professor Coleman has stated, "that crib-biting frequently

produced a disordered function, which was the effect of swallowing the air in the attempt to lay hold of some fixed object: that produced indigestion and a disordered stomach, a difficulty of breathing, with spasms and inflammation; and if the disorder got lower down, it produced disorder of the bowels."

Mr. *Sewell* has stated, that "crib-biting is treated as a *disease*."

Mr. *Geo. Gosden* has stated, that "the health of an old stanch crib-biter is not affected *unless* the stomach or bowels are affected."

Fifthly, gentlemen, I shall shew you that

Crib-biting constitutes unsoundness.

Professor Coleman has stated, "that a crib-biter may, or may not, be unsound." Also, "that a crib-biter that was sold to-day in good condition, and which in six months time is found to have inflammation of the stomach and bowels, was to be considered as '*unsound*' when sold, inasmuch as you would be able to trace the effect from the cause.'"

Mr. *Sewell* has stated, that "crib-biting was considered as an *unsoundness*."

Mr. *James Turner* believed that crib-biting "was *decided unsoundness* in many cases."

Mr. *Bracy Clark* has said, "when crib-biting became confirmed, so as to affect the health of the animal, *it was an unsoundness*."

Sixthly, gentlemen, I shall adduce evidence to shew that

Crib-biting does not constitute unsoundness.

Professor Coleman has said, that "a crib-biter may, or may not, be unsound. If the habit exists in a slight degree, that is, if the horse only occasionally bites his crib, but supports his condition, and can perform all the duties of a horse, then I should say he was *not unsound*."

Mr. *Bracy Clark* said, that "a crib-biter would not be returnable upon a warranty of unsoundness, unless the health of the horse was affected by the habit at the time."

Mr. *James Turner* believed, "that a horse might be a crib-biter, and yet *perfectly sound*."

Mr. *Geo. Gosden* was of opinion, that crib-biting "was neither a vice *nor an unsoundness*."

Mr. *Lythe* decided, that crib-biters were, "certainly not," *unsound*.

I hope, gentlemen of the jury, I have redeemed the pledge I made to you at the beginning, that I had evidence full and sufficient before me to prove to you, that crib-biting was a *habit*, or a *vice*, or *both*, or else a *disease*; and that it constituted either *unsoundness* or *not*, according to the different lights which "the

learned doctors" may be pleased to set the matter in. And now, gentlemen, pray,

"Who is to decide when *doctors* disagree?"

It is written, that a certain person (with whom, I trust, gentlemen, none of you have any acquaintance) "can quote even Scripture to serve his wicked purposes;" what then might any one of you do on the present occasion to serve yours, did you feel so iniquitously disposed? In what a dilemma, gentlemen, have these learned doctors set us! What shall I, what can I do, creditably to extricate myself in counselling you? It is not for me, gentlemen, or for you, to pretend to any technical knowledge of the habits or vices, or diseases of horses; nor to enter into the abstruse veterinary subjects of *soundness* or *unsoundness;* we have only to suffer ourselves to be guided by the nature and value of the evidence adduced: but where that is of such indefinite and irreconcilable a description as the present is, pray how can we make such use of it? I repeat, gentlemen, pray, what is to be done? How are the merits of the present case to be determined in accordance with law and justice?

The only expedient I can hit upon for your direction and guidance, is, that as the professional evidence is such as to place itself *hors de combat*, you will suffer the question to turn simply upon this point,—viz. whether the dealer or the gentleman be, in all likelihood and probability, the *abused party;* and, accordingly, as you are of opinion that one party or the other is, for that party you will, I trust, feel disposed to find your verdict.

His lordship was about to proceed, when the jury interposed, saying, their minds were made up.

Lord Tenterden.—You find for the gentleman, the plaintiff?

A juror.—Yes, my lord.

THE EARLY HISTORY AND ORIGINAL CONSTITUTION OF THE VETERINARY COLLEGE.

[Continued from p. 149.]

REGULATIONS OF THE VETERINARY COLLEGE.

I. The establishment shall consist of a society and school, to be called the Veterinary College.

II. The business of the society shall be conducted by a president, twelve vice-presidents, twenty-four directors, and a treasurer, forming a council; in whom shall be lodged the whole executive power of the college, subject to the controul of the members at large in general meetings.

III. The president, vice-presidents, and treasurer, shall be

chosen annually. The twenty-four directors shall be divided into four classes; one class shall go out each year, and six directors be elected in their place. No director shall be re-elected till after the intervention of one year.

IV. Ten members shall form a quorum at a general meeting, five a quorum of the council, and three a quorum of a committee.

V. Five auditors shall be annually chosen; three of whom shall not be of the council, nor on any committee.

VI. The eighteenth of February, being the day on which it was resolved to establish a veterinary college, shall be the anniversary; on which day the several officers of the college shall be elected, and the members invited to dine together, unless it shall happen on a Saturday or Sunday, and in that case the Meeting shall be heldon the Tuesday following.

VII. Four quarterly general meetings shall be held in the year, viz. on the first Tuesday in February; the first Tuesday in May; the first Tuesday in August; and the first Tuesday in November; at which meetings the minutes of the last quarterly and all subsequent general meetings shall be read.

VIII. No regulation shall be altered or repealed, nor shall any new regulation be enacted, but by the consent of two-thirds of the members present at two successive quarterly meetings; and every proposed regulation, alteration, or repeal shall, after the first meeting, be fairly written, and exhibited in the council room for public perusal and consideration. This regulation shall extend also to the removal of any of the officers of the college whose salary shall amount to £150 per annum or upwards.

IX. A discretionary power shall be lodged in the council, by which they may in cases of emergency, or where the advantage of the institution is evidently concerned, make orders, which shall have the force of regulations till the next quarterly meeting, when they shall be submitted to the determination of the meeting.

X. Any sum not less than two guineas shall be a qualification for an annual member, and not less than twenty guineas for a perpetual member.

XI. No person shall be entitled to debate or vote at any meeting who has not been a member six calendar months, nor until his subscription for the current year, and all his arrears, are paid; and no person shall be entitled to be present at any meeting whose subscription shall be two years in arrear.

XII. At all elections, peers and members of parliament, and ladies (having been subscribers six months), shall be allowed to vote by proxy; such proxy being a member of the college.

XIII. All elections shall be by ballot, and shall be determined in one day between the hours of 12 and 3 o'clock. The president, vice-president, treasurer, or such other member as shall be in the chair at any general meeting, council, or committee, shall, in all cases of equality of votes or ballot, have a double or casting vote or ballot.

XIV. No member who shall in any manner, directly or indirectly, derive any advantage, profit, or emolument, from the funds of the college, or who shall be charged by the college with any office whence such profit shall accrue, shall be elected into the council; and any member of the council so receiving shall immediately vacate his place. Nor shall any member who receives any advantage or emolument from the college be chosen or continue on any committee.

XV. No officer or servant of the college shall presume, under any pretence whatever, to accept of any present or gratuity from any member, or from any tradesman or other person having dealings with the college, on penalty of dismission.

XVI. A volume of the transactions of the college and school shall be published annually, and delivered to each subscriber or his order, at the college, gratis.

XVII. A medical experimental committee shall be chosen, who shall meet occasionally for the purpose of suggesting and making experiments, with a view to throw additional light on the animal economy, and to ascertain the effect of medicines upon different animals to be procured for that particular purpose; and for inspecting the drugs and medicines bought for the use of the infirmary.

XVIII. A professor of veterinary medicine shall be appointed, whose appointment shall be subject to rule, No. VIII.

XIX. A secretary shall be appointed, whose appointment shall be subject, to rule No. VIII.

XX. A collector shall be appointed, whose appointment shall remain during the good conduct of the officer.

The PRESIDENT shall preside at all meetings of the college, and shall have the power of convening a special general meeting, giving ten days notice to the members by advertisement in two or more morning papers.

The VICE-PRESIDENTS, in the absence of the president, shall preside at all the meetings of the college, in the rotation of the list; and any three of them are empowered to convene a special general meeting in the same manner as the president.

The COUNCIL.—The council shall meet the first Tuesday of every month, and as much oftener as shall be found necessary.

A superintending committee shall be chosen, who shall meet

every Tuesday to receive the reports of the officers, and to examine into the state of the college. This committee shall consist of three of the directors, who shall attend in rotation, and who shall receive notice thereof from the secretary on the preceding Monday. This committee shall be open to any member of the college.

Such directors as shall not attend, in one year, four councils, or shall not have attended in rotation the superintending committees, or engaged other directors to attend for them, shall vacate their places as directors; and, at the annual election, others shall be chosen in their stead into the class they belonged to.

Any six of the directors are empowered to convene a special general meeting in the same manner as the president or three vice-presidents.

If a requisition for a special general meeting be signed by nine members entitled to vote, and the business be declared in the requisition, the president, vice-presidents, or directors, shall convene the meeting; and, on refusal, the nine members are empowered to convene it in the same manner as the president, vice-presidents, or directors, should have done.

The TREASURER, in the absence of the president and vice-presidents, shall preside at all meetings of the college, and shall report monthly to the council the state of the college accounts. He is to pay no bills exceeding twenty pounds without a written order signed by three of the council.

The PROFESSOR shall have the arrangement and direction of the studies and occupations of the pupils, of the distribution of his lectures, and of the number and nature of the subjects required for dissection. He shall likewise judge of the kind and quality of the forage to be provided for the infirmary, of the regulation of the cattle therein, and of the remedies to be employed. He shall make a report every week to the committee of the state of the college, viz. the number and condition of the animals admitted into the college; the number and condition of the animals discharged from the college; the conduct of the pupils; the conduct of the servants; the different sorts of forage, as well as of stores and materials wanted, including drugs, &c., except such articles as it shall be found necessary to provide between the meetings of the committee, which is to be reported at the next meeting of the committee. He shall have a copy of the several articles ordered from time to time by the committees; and he shall not receive any thing into the college but what is so ordered (except as above), nor without a bill of parcels.

The SECRETARY shall reside at the college, and be present at all meetings, councils, and committees. He shall take minutes of

all such meetings, and shall announce and read all letters, papers, communications, &c., and shall take care of the official books and papers belonging to the college. He shall write the letters directed to be sent on account of the college, by any meeting, council, or committee. He shall keep the accounts of the college, which may arise as well from the general business as from the particular departments: this will include the superintendance of the receipts and delivery of what may be brought to or taken from the college, or any of the departments of shoeing, pharmacy, &c. He shall produce a state of his accounts every week to the committee.

The COLLECTOR.—He shall, within one calendar month after notice is given him by the secretary of the admission of any member, call on him for his subscription; and shall call on all annual members, within one month of the date of their admission, for their subscriptions. He shall have receipt books provided, which receipts shall be signed by the treasurer, and countersigned by himself when he delivers them. He shall at no time retain more than £20 in his hands; and as soon as that sum is collected, he shall pay it to the treasurer. He shall produce his books to the committee every week, and make his report of members in arrear every month.

NAILING HORSESHOES ON.

REMARKS THEREON SUGGESTED BY THE PERUSAL OF MR. TURNER'S PAPER IN THE LAST NUMBER OF "THE VETERINARIAN."

THERE seems to be something inherent in the nature of man which disinclines him at all stages of his life, but perhaps in a stronger degree as he grows older, to lend a favourable or acquiescent ear to any innovation or alteration tending to overthrow or even disturb old-established customs or practices: hence innovation of any description is certain to encounter opposition; and though it be of a most useful and necessary description, yet will men's eyes be shut to it, until its obvious utility and genuine value shall have forced them open. This accounts for many truly valuable discoveries not being acknowledged as such until long after their production, nay, until their very authors themselves have quitted that stage upon which they have exhibited their achievements. How many instances might be quoted here of Fame strewing her laurels over the grave of him to whom, while living, she had refused a single sprig!

And, yet, this is all most wisely ordained. "The love of things ancient, doth argue stayedness; but levity and want of experience maketh apt to innovations."

Were we to listen to every novelty-monger, we should speedily find ourselves embarked upon a sea fraught with rocks and quicksands, and no longer be able to assure ourselves of safety until we had again *dis*embarked upon that *terra firma* which nothing but the fullest conviction and experience should ever induced us to have quitted.

If there be any thing beyond another to which the veterinarian finds himself professionally allied by nature, it is the practice of shoeing—such as it has been *in principle* for many long years: by which principle, I mean, the custom of *nailing the shoe to the hoof.* Any man who proposed any other mode of attaching the shoe than this, would be eyed (and justly so) with suspicion—ay, and distrust too. For this reason, Mr. Percivall's invention of the Horse Sandal (which, by the by, is only intended as a *temporary* substitute) will, whatever may be its merits, take some time to make its way with the public. And for the same reason the present alteration (even though it be only an *alteration)* in the process of nailing the shoe to the hoof, recommended by Mr. Turner, will, whatever hereafter may prove its advantages, require time for its general adoption. This time, however, may be much abridged by the test of experiment, and even by a theoretical discussion of the nature of the innovation, together with the advantages consequent upon its adoption.

Mr. Turner proposes that, instead of nailing the shoe, according to the common and universal practice, upon *both* sides, we should (without diminishing the *number* of them) so introduce the nails, that the *inner* side of the shoe and hoof be left entirely without any. His directions, in his own words, for the disposal of the *eight* or *nine* nails, are—"*six* in the outside quarter and toe of the foot, and *two* in the inside toe: no nail-hole to be punched immediately in the centre of the toe of the shoe, thereby avoiding any inconvenience which might arise from the joint pressure of the clip and nail at this part; but the first nail-hole to be punched close to it, at the outside toe, and the remaining five as far distant from each other as possible, without the last nail approaching nearer the outside heel than is consistent with the safety of its insertion; the first nail in the inside toe to be punched full an inch from the inside edge of the clip." Such are Mr. Turner's instructions to us, which he recommends us to pursue instead of continuing the old and established practice; and which he extols, on account of its *unfettering* the foot from that state of bondage in which it is placed by the ordinary mode of inserting nails through *both* sides.

The plainest, and perhaps the justest view, we can take of any innovation of the kind advocated by Mr. Turner, is to make a

calculation in our mind of what we shall gain and what we shall lose—what risks we run from the change, and what counterbalancing profits are held out to us by its success.

The shoeing process is an affair of art, under the cognizance of mechanical principles; and art is most happily employed when it executes its purpose at the least possible expence to the vital machine it is engaged with. That horseshoe is the best of all others which fulfils every required end of a shoe or defence to the hoof, at the same time that it does not detrimentally interfere with the functions of the living foot. To adjust the balance nicely between these two objects, may be said to constitute the science of farriery. In the present state of our knowledge, it would appear impossible to fulfil both; consequently, he deserves the greatest merit who can approach the nearest to so vitally important a desideratum. And to Mr. Turner, for his repeated efforts to accomplish something extraordinary, the profession owes, at least, its meed of approbation. On the present occasion, however, I, for one, am desirous to ascertain the real value of the fruits, offered to the veterinary public, of Mr. T.'s labours.

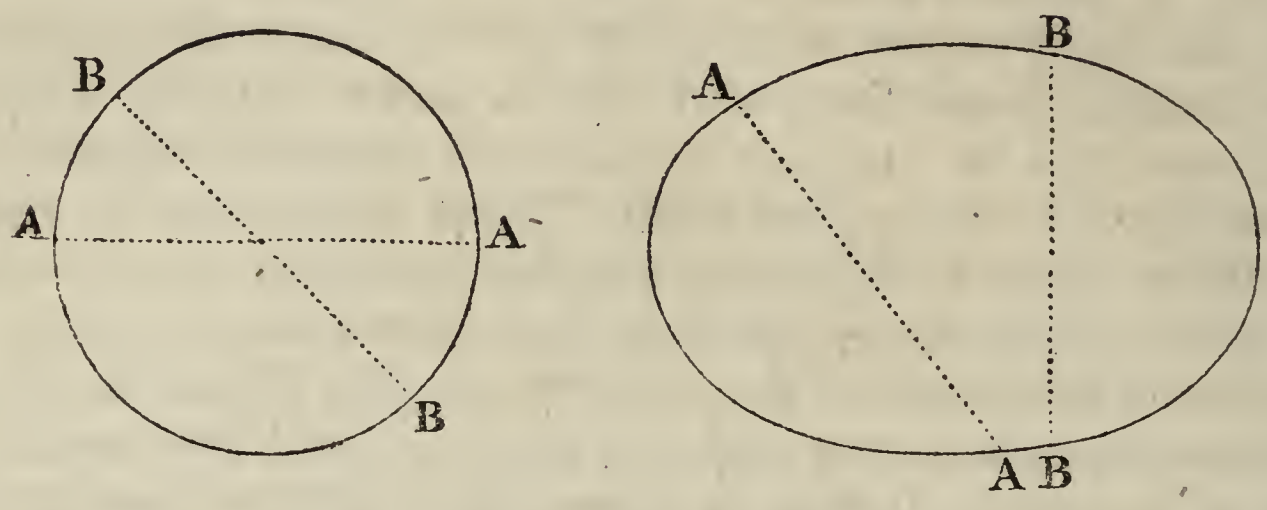
In order to arrive at a correct estimate of this, we must proceed step by step, and take every progressive step with caution.

1st. Let us inquire what we gain by nailing the shoe upon *both* sides.

Looking with a geometrician's eye at the inferior surface of the hoof, we shall discover that its circular or ovoid figure renders it susceptible of that reciprocal resistance and support which is the characteristic mechanical attribute of a complete circle or any thing constructed in the form of an arch: whatever force is applied to it at one point, is resisted by the support which that point receives from every other in the circle; and this reciprocity cannot be at any single point destroyed without manifest injury to the entire structure. The circular figure of the hoof, therefore, not only gives it the largest superficies possible within the same limited dimensions, but it also endows it with a power of resistance which, under any other form, it would not possess.

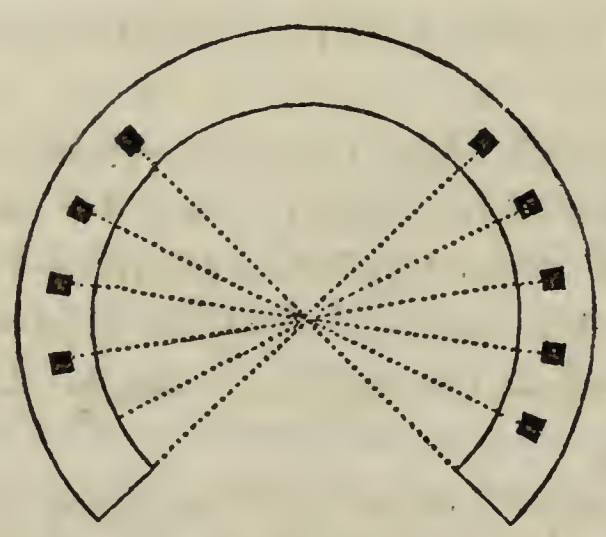
As with the hoof so it is with the shoe. Its corresponding circular figure enables the scientific artisan to give its attachment to the hoof that stability and power of resistance which no other form would so well admit of. This he carries into effect by nailing on *both* sides; the nails on one side supporting those on the opposite side, and *vice versâ*. Upon the hoof in figure, a perfect circle, these opposite and reciprocal points of support would be shewn by chords drawn through its centre: where, however, the figure is that of an oval, we can only obtain such

results by the formation of two (or, if required, more) centres. The diagrams underneath may serve to illustrate my meaning:—



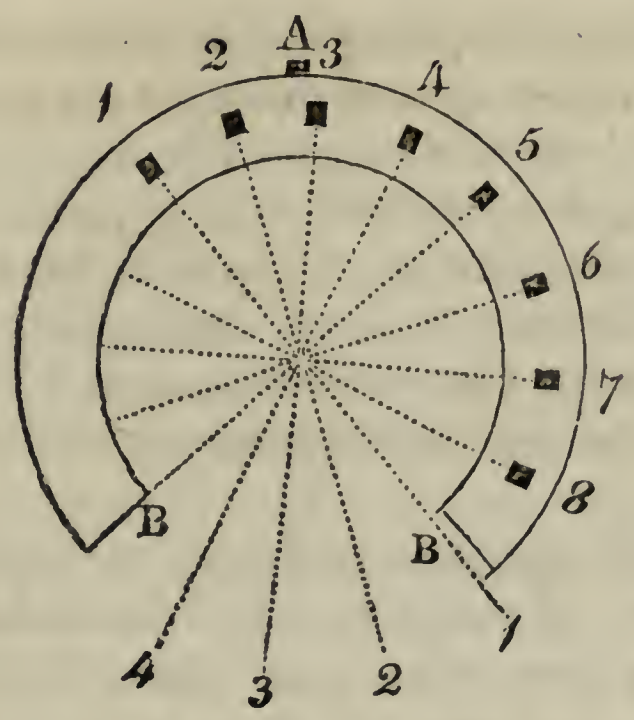
In these examples, A, A and B, B reciprocally support each other: what tends to disturb one point is opposed by the other, so that the resistance is always double; and in the case of the circle more than double, because each distinct part receives its strength from the integrity of the whole.

Let us apply these geometric principles to the practice of nailing shoes upon horses' feet. The figure of the hoof is circular, or inclines more or less to an oval: let us see, then, how the nails, placed in the ordinary mode, tend to the support of one another.



An inspection of this diagram will shew the points and directions in which the nails, according to the ordinary method of placing them, mutually support each other. It likewise demonstrates that the nails near the heels yield more support to the shoe than those near the toe; which latter, were they placed yet more in front, would be unsupported by counter-holds altogether.

Let us, in the second place, test by this principle Mr. Turner's method of proceeding. The figure subjoined may serve to explain the innovation in nailing he proposes:—



From which it appears, that four nails out of the eight receive no counter-support at all; that the other four are supported by the shoe alone; and that no two nails can operate with direct reciprocity, in consequence of not being in the line of any diameter of the circle.

The corollary naturally deducible from the foregoing premises is—

That a shoe with the nails placed as recommended by Mr. Turner, is not half so secure upon the foot as one nailed according to the ordinary method of practice.

With these facts before us, the question to be considered is, whether such holdfasts, as are obtained by the reciprocal support of all the eight nails, can, in a mechanical point of view, be dispensed with by the blacksmith: can he give the shoe its *due security* upon the foot with half the number?—or (what is tantamount to this) with the whole number distributed according to the mechanically inefficient stations assigned to them by Mr. Turner?

My own humble knowledge and experience leads me to assert, that the shoe requires *all* the support and security it derives from our ordinary nailing; at least for the purpose of *actual labour and exertion.*

In some such rides, upon some such *smooth* roads, as some gentlemen take in their excursions for pleasure, four nails might hold the shoe on as effectually as fourteen. But this is not at all to the purpose.

Again, there are some feet that require every aid and support the nails can afford in order to keep shoes upon them, while others may be left with half the ordinary security. But this remark is no more to the purpose than the other was. Mr. Turner (as well as myself) speaks of *general practice.* Exceptions go for nothing.

It would be idle for me to attempt any thing about the advan-

tages the foot would gain by having the shoe nailed as Mr. Turner proposes, when both theory and practice assure me that the shoe would *lack sufficient security upon the hoof* by such innovation. It will be time enough to consider this point, when Mr. Turner has convinced veterinarians, farriers, and blacksmiths, that they have no occasion whatever to insert nails along the *inner* side of the shoe; nailing along the outer side and "inside toe" being all that is required under all circumstances and in all situations, to keep the shoes on.

I trust Mr. T. will discover nothing in this letter but what is fairly argumentative: I write to elicit knowledge, not to excite wanton and fruitless discussion; and am, Gentlemen,

Your obedient servant,

A CONSTANT READER.

ON THE CAUSES AND PREVENTION OF FOOT-ROT IN SHEEP.

By Mr. DICK, *Veterinary Surgeon, Edinburgh.*

THE foot-rot in sheep is a subject of so much importance to the agriculturist, and the disease has prevailed to such an extent during the last two years, that any apology for offering a few remarks upon it would be superfluous. Indeed, its destructive effects are at any time such as to call attention to this subject; and the differences of opinion which exist regarding the causes which produce the disease, the means of preventing it, and the remedies for it, plainly shew that the subject is as yet but imperfectly understood.

There are some points of importance to be kept in view, in order to understand properly either the functions of the foot of the sheep, or the nature of the diseases to which it is liable. The foot presents a structure and arrangement of parts well adapted to the natural habits of the animal. It is divided into two digits or toes, which are shod with a hoof composed of different parts, similar in many respects to the hoof of the horse. Each hoof is principally composed of the crust or wall, and the sole. The crust, extending along the outside of the foot round the toe, and turning inwards, is continued about half way back between each toe on the inside. The sole fills the space on the inferior surface of the hoof between these parts of the crust, and, being continued backwards, becomes softer as it proceeds, assuming somewhat the structure of the substance of the frog in the foot of the horse, and performing, at the same time, analogous functions. The

whole hoof, too, is secreted from the vascular tissue underneath. There are, besides, two supplementary digits at the fetlock.

Now, this diversity of structure is for particular purposes. The crust, like that in the hoof of the horse, being harder and tougher than the sole, keeps up a sharp edge on the outer margin, and is mainly intended to resist the wear and tear to which the foot of the animal is exposed.

"In a state of nature," says Mr. Wilson (Quarterly Journal of Agriculture, page 354) "the sheep is not less active and energetic than the goat; its dimensions are fully greater, and its muscular strength is at least equal, both in force and duration. It is also an alpine animal, fearless of crag and cliff, and dwelling, indeed, *by preference, among the steepest and most inaccessible summits of lofty mountains.* Among its native fastnesses, it is seen to bound from rock to rock with inconceivable swiftness and agility." And there the construction of its feet, the sharp hard tough margins of the crust, enable it to catch hold of the smallest ridge with the greatest security. In climbing and leaping among rocks, however, in this manner, or travelling on the sides of mountains along the sheep-tracks, its hoofs must be much worn or otherwise destroyed; but, it is found, that the hoofs of all animals, by such circumstances, become possessed of a degree of hardness and toughness which they do not possess under other circumstances. The hoofs of horses, by exercise without shoes on a hard surface, are changed in this way to a certain extent. The hoof is worn away as it grows; but as the consumption is equal to the production, it is always fresh and sound. This is the case with wild animals, and those of a half domesticated kind are but little changed from it.

But what is the effect of domestication?—What do we gain by enticing the sheep from his native and natural haunts, to the richer pasturage of our meadows or lawns? There the animal enjoys a more luxuriant repast; it fattens to a larger size, and will, in this respect, repay the increased allowance which has been made to it. But, instead of moving about in small troops with the alacrity of the wild kinds, the sheep are seen in flocks of thousands moving slowly over their pastures, and gorging themselves to an extent which cuts short the thread of life, by the advancement of various diseases. Instead of wandering from the summit of one peak to another, in quest of a scanty subsistence, or, instead of being compelled to descend from the summits of the mountain in the morning, and ascend again in the evening, they are compelled, in many cases, to remain within a few yards of a particular spot for weeks together, and there engorge themselves to satiety.

But what, it may be asked, has this to do with the foot-rot?—More, I am inclined to think, than is generally imagined. The hoofs of sheep being intended to receive a degree of friction from hard surfaces, are not acted upon when the animal is placed under such circumstances; and the necessary consequence is an overgrowth of the hoof. The crust,—the part naturally intended to support the weight of the animal, and to endure the greatest share of fatigue,—is here allowed to grow out of all due bounds, because the softness of the pasturages, upon which it now moves, presents little, if any, of that rough friction to which the feet of the animal is naturally intended to be exposed. The crust, therefore, grows unrestrained, until it either laps over the sole, like the loose sole of an old shoe, and serves to retain and accumulate earth and filth, or is broken off in detached parts, in some cases exposing the quick, or opening new pores, into which particles of earth or sand force their way, until reaching the quick, an inflammation is set up, which, in its progress, alters or destroys the whole foot.

It is well known that there are some pastures peculiarly apt to produce this disease, and these vary to such an extent, that it is with an almost irresistible necessity that the conclusion thence derived is, that the disease is highly infectious. Few have ventured to question this point; and the stubborn facts advanced in support of such doctrine are so strong, that it requires some degree of hardihood for any one to attempt to refute it. Before I, therefore, venture to give any opinion upon this part of the subject, I shall first advert a little further to the nature of the situations and circumstances under which the disease most commonly makes its appearance.

The finest and richest old pastures and lawns are particularly liable to this disease; soft, marshy, and luxuriant meadows are equally so; and it is also found in light, soft, or sandy districts. In the first of these it is perhaps most prevalent in a moist season, and in the latter in a dry one; in short, it exists to a greater or less extent in every situation which has a tendency to increase the growth of the hoofs without wearing them away, and more especially where they are kept soft by moisture. It is so prevalent in fine lawns and pleasure-grounds, that they are, in many instances, reduced in value to a mere trifle as a pasture for sheep; they are said to be *infected* with this disease, and, having once become so, the vicissitudes of *seven* seasons are scarcely sufficient to destroy the contagion. A luxuriant herbage on soft pastures is equally subject to it; and, in both cases, the disease is increased in a wet season.

The reason why, in these situations, sheep are so liable to the

disease, is quite obvious. They are generally brought from lands where their range of pasturage was greater than in these situations. In their former state, from the exercise which the animal took, and the nature of the grounds on which it pastured, the hoof was worn down as it grew. But, under the state in question, the hoofs not only continue to grow, but, where the land is moist, that growth is greatly increased; and the animal does not tread upon hard ground, nor has it exercise to wear them down. Now, in the case of man himself, when the nails of his fingers or toes exceed their proper length, they break, or give him such uneasiness as to induce him to pare them. And the same takes place with the hoof of sheep. But there is this difference in the case of the latter, that when their hoof once breaks, as the animal has not the power of paring it, the part thus broken must continue a wound. Some parts grow out of their natural and proper proportions; the crust of the hoof grows too long; and the overgrown parts either break off in irregular rents and unnatural forms, or, by over-shooting the sole, allow small particles of sand or earth to enter into the pores of the hoof. These particles reach the quick, and set up an inflammation, which is followed by the destructive effects which are too well known to require description.

Similar effects are produced on soft wet grounds. The feet, in such a situation, are not only not subject to a proper degree of friction to wear down the hoofs, but the growth of the hoofs is materially increased by the soft and moist state in which they are kept. And this state renders the feet the more liable to the disease, as it opens up the pores of the horn, and allows the earth or sand to penetrate and wound the quick, in the manner I have already stated. On soft sandy ground, of a dry nature, the same circumstances may occur. The soft sand gives way by the weight of the animal, and the crust of the hoof is not worn down. The sand penetrates between the sole and the crust, as has been already explained, and produces inflammation. The disease, however, is not so common on sand as in the other situations to which I have alluded, the sand seldom being found in such a loose state.

There is another circumstance which tends to produce the disease in an overgrown hoof. The length to which the crust grows changes completely the proper bearing of the foot; and this lengthened crust, by being extended forward, is subjected to the whole weight which the foot has to bear. By the continued strain of the parts on this lengthened toe, inflammation is set up in a manner similar to what occurs in acute founder in horses; and this inflammation produces effects extremely ana-

logous. This is also frequently the cause of disease in the feet of oxen or milch cows, which have been kept standing for a long period in the cow-house. The laminated structure by which the crust in the sheep's foot is connected, like that of the hoofs of horses, having been inflamed, and that inflammation kept up by the continuation of the causes which originally excited it; there is produced a change in the structure from which the hoof is formed; and, there being a diseased secreting organ, of course a diseased secretion of horn is produced. We have therefore a loose spongy horn secreted, which, from the openness of its pores, admits the particles of earth and moisture more freely than before, and these are also at the same time more securely lodged by the rapid growth and overshooting of the crust, until, by the continued irritations upon the quick, they soon cause a discharge of matter. This matter from the inflamed part, by mixing with the moisture of the ground and the particles of earth, increases more rapidly the destruction of the whole foot.

The progress of the disease is not equally rapid in every instance. Sometimes it seems to go on to a certain extent, and the foot may again, in a considerable degree, recover. All the feet of the same animal are not equally affected, the fore ones being most liable to the disease. Sometimes there is only one of the feet affected, but that is most commonly a fore one. At times I have found only one of the digits of the foot affected; and, in some, from the hoof having been broken short off, I have found one of the toes recovered, while the other toe continued diseased.

In the first stage of the disease there is only found a little overshooting of the edge of the crust, which seems either to be overgrown and bent in upon the sole, or the edge of the crust is forced asunder from the sole by a wedge of earth, which, by the pressure alone between the crust and the laminated structure, produces inflammation. With this the sheep becomes lame, and the disease spreads rapidly. In the other case, the crust or edge of the hoof continues to grow until it envelopes the sole, and lodges matter, as has been already stated. The softening of the horn of the sole, from these causes, soon excites that inflammation which detaches the hoof, and produces the alterations in the secreting surface which constitute the disease. Nature, however, is bountiful in her provisions. The inflammation which is set up is not generally of the most active or acute kind; for it would appear that, instead of the inflammation being raised to that pitch which would at once throw off the hoof, there is, for a time, most commonly rather an increase

in the action of the secreting parts, and a large quantity of new horn formed. This horn, however, is of a soft nature, and unfit for the perfect functions of the part, but it, nevertheless, presents a surface less sensitive than the more irritable surface which it covers.

The sound and healthy horn being destroyed, the *vis medicatrix* which exists in the secreting part throws out the most insensible substance which it is still able to produce, in order to afford a temporary protection to the parts underneath; and even when, by increased or long continued irritation, the parts are unable longer to secrete even this weak horn, granulations of proud flesh sprout out, whose surface is not of the most sensitive kind.

In all cases there is a general increase of the secretion of the whole hoof. In some parts, however, this is greater than in others, and hence the great increase of the crust, and the general distortion of the foot. As the disease is continued, this secretion is altered, according to the degree of the inflammation which exists; and the hoof, particularly the inside of it, between the digits, has a ridged-like appearance. At the connexion of the crust at the inside with the softer and thinner parts of the hoof towards the heel, there is also commonly a separation, or fissure, from which is thrown out a loose thready-like fungus, similar to what occurs in canker in the foot of the horse—to which disease, indeed, some have considered foot-rot very analogous. The difference between the analogy of the two, however, consists in this, that, in some cases of long standing, it approaches towards canker, while, in more recent cases, it resembles thrush. Foot-rot, however, is attended with more inconvenience to sheep, than thrush is to the horse.

We occasionally meet with something more closely analogous to it than either canker or thrush, in cases of weak heels with corns, or in what is called a seedy toe in the foot of the horse. In such a case we often find mild or indolent inflammations, followed by suppuration, which proceeds slowly detaching the crust, as in foot-rot.

In other circumstances, however, we find, that instead of the slow and gradual progress of the disease which I have described, it moves on with greater rapidity; violent and painful inflammation is set up, which renders the animal excessively lame in a short time. It even breaks out at the coronet (top of the hoofs), causing the whole hoof to be detached; or the digits become swelled at the coronet, matter is formed, and sinuses run in various directions. The upper part of the space between the hoofs becomes inflamed, irritated, and moist with a secretion of

matter; or, by the play and inflammation being kept up, ulceration extends, and the toes are cleft up almost to the canal above them. This canal is inflamed; the mucous follicles with which it is lined are increased in their action, and pour out a large quantity of sebaceous-like matter, which spreads over the fore-part of the foot, and between the hoofs, and assists in accumulating the filth by its adhesive qualities. In other forms of the disease, it would appear that this interdigital space is the primary seat of the disease, in which cases it will be found that the hoofs are quite worn down by the kind of ground upon which the animal pastures; but while it is of that nature to wear down the hoofs, the space between the hoofs, and also the coronets, must be constantly exposed to the action of cold and moisture, until the derangement is set up in the circulation of those parts which produce the disease, in a similar manner as chilblains in the human subject.

The same effect is also sometimes produced in another manner on particular pastures. As the animal moves along, the strong coarse grasses are drawn through between the hoofs, until, by repeated friction, inflammation in the form of scalding is set up, which will be increased or diminished according as the cause is continued, or a proper treatment adopted.

In many cases maggots are found wallowing in the matter of foot-rot, which has led some to suppose that the disease is produced by some insect. This, however, is only an effect, but not a cause of the disease. We find maggots, at certain seasons of the year, in every situation where an accumulation of putrid animal matter is to be found. I have found them during summer in canker, thrush, and grease, where the cause was too apparent to be questioned; and this, I think, is also the case with maggots in foot-rot. In all cases much constitutional disturbance is produced; the animal loses flesh rapidly; the flesh is red, from the degree of inflammatory fever produced, and unless relieved by proper treatment, the animal becomes worn out by irritation, and its inability to seek its food; for awhile it shifts about upon its knees, but at last dies from irritation and want.

On examining the feet of a flock, in a short time after they have been placed in what is called an *infected* pasture, it will be found that many of them are becoming rapidly affected with foot-rot, and that too before any matter has made its appearance, and before any of the sheep have been found lame. In some situations, the disease is so rapid in its progress, that in two or three weeks the whole flock becomes affected; and this, it is supposed, is produced by infection.

This case most commonly occurs when sheep have travelled a

good distance, and are put upon a wet pasture. Their feet, having been too much worn down and heated on their journey, are then exposed to filth and moisture. By the injury which they have received upon the road, the pores in the horn, which are the consequence of such travelling, render them more liable to disease than if they had travelled a moderate distance. And if they happen to be lame from the effects of a long journey, the whole is charged against the infected ground, or to some Nestor of a sheep which has communicated the contagion.

One of my pupils some time ago happened to have some conversation with a shepherd, and was arguing w th him ag ainst the infectious nature of the disease, but without being able to convince him of its non-infection. The shepherd gave him the following case as a proof of its highly infectious properti s:— He once set out on a journey with a flock, and there happ ened to be one of them lame from foot-rot before starting, and, e e he had travelled sixty miles, there was scarcely a sound one in th e flock. Such a proof of infection as this was not easily overturned; the road had been infected by the diseased sheep, and what between the road and the sheep, it is evident the disease spread. Such is a specimen of the infectious nature of it, or rather the views regarding it. In all probability, these sheep had been going on wet soft pasture, and the hoofs being weakened, or perhaps diseased, before setting out, lameness was a necessary consequence.

When I consider the stubborn facts which are urged in support of the infectious nature of this disease, and the weight of those opinions which may be brought in support of it, I conceive it to be a matter deserving of calm and dispassionate consideration. But, after the pains and investigation I have bestowed upon it, I feel compelled to advance a contrary opinion, and to state, that the idea of its being infectious is a mere delusion—an error which is fraught with most important consequences, inasmuch as it has directed the attention to erroneous causes, and thereby to improper or useless means for its prevention. Nay, even lands which have got the name of being infected have, in consequence, become unnecessarily diminished in value.

Since, then, it appears to me that the disease is not infectious, what, it may be asked, is the cause from which the foot-rot arises? I have already described the situations and circumstances under which the disease is found to exist, from which the answer follows as a consequence. I have stated, that wherever we find rich old pastures covered with moss plants, or where the hoofs, from the softness of the surface by the quan-

tity of grass upon it, are prevented from being worn down, the disease will be found to prevail; and in those situations where the soil is rich and moist it will be found more particularly increased. For similar reasons, it will prevail more especially where there is a superabundance of grass; and on dry old pasture it will be found to proceed most rapidly at the season when the dews are greatest. When it occurs on light sandy soils, the dry seasons will be most liable to produce it.

All this, it will perhaps be said, may be quite true, and still the disease has not been divested of its contagion. One will say he knows of ground where foot-rot never existed before, becoming infected by a few sheep, perhaps a single one, having been brought upon it, and that the disease has spread in a few weeks to the whole flock. Another will say he knows of a case where all the ewes of a flock have caught the infection from a single ram. But, in such cases, has nothing been done in the way of improving these lands? The Ettrick Shepherd, in a paper in the last Number of the Quarterly Journal, has shewn that even the alterations produced by the destruction of moles has a material influence in causing it, and that, too, while he at the same time considers it infectious. But has any one ever attempted to produce the disease by inoculation? If it is highly infectious, surely it will at once be produced by inoculation. But this is not such an easy matter as one would expect from a disease which is supposed to infect a whole field, and that, too, even if it be of five hundred acres in extent.

Gohier, a French veterinarian, first applied a piece of horn from a diseased foot, covered with the matter, to the sole of a sound foot, without effect. Secondly, he rubbed a diseased foot against a sound one, without effect. Thirdly, he pared the sound foot, and having applied a piece of diseased hoof, the disease afterwards appeared; but, in this case, the foot afterwards got well of itself, and there seems to have been a doubt in the mind of Gohier as to whether it was truly foot-rot or not.

Other French veterinarians have tried similar experiments, and particularly Vielhan of Tulle, and Favre of Geneva; and although I have not seen an account of their experiments, it is said they succeeded in producing the disease by inoculation. Now, it will be asked, is not this a sufficient proof of its infectious nature? I answer that it is not. It appears to me that this is a strong proof against it. If it is produced with so much difficulty by the direct application of matter, is it not absurd to suppose that a few sheep with diseased feet should infect a whole field? I have not seen an account of the manner in which the experiments of the French veterinarians have been per-

formed. I know not what quantity of matter was employed, neither have we any account of counter-experiments, nor whether any were tried to prove whether a similar effect would not have been produced by the application of any other morbid matter; for example, whether the matter of grease from the heels of horses, or from thrushes, would not have produced similar effects. I have little doubt of such being the case,—that suppuration might be produced by inoculating with that or almost any matter, if in the operation the wound was made sufficiently deep; nor would I doubt that disease would be produced if matter was spread over the foot in sufficient quantity, and applied for a sufficient time.

But I repeat, that it is absurd to suppose that, if applied to the hoof, it would produce the disease. The hoof is not governed by the laws of living matter; it is totally insensible, and it has not a circulation, neither has it nerves: it absorbs moisture only like a piece of inert matter, and it is not acted upon as a living part. Matter from the foot of a diseased sheep might as well produce the disease in a tree, nay, even more likely, because it is a living body, which the hoof is not. Why then are we to suppose the hoof to be acted upon by matter from diseased feet, and that too after the matter has been exposed to the influence of the atmosphere? But rain and sun, we must suppose, have no influence upon it. Arsenic may be diluted with water to such an extent as to be swallowed with impunity, but water seems to increase the virulence of the matter of foot-rot. It is true that heat and moisture will reduce, after sufficient exposure, animal matter to a putrid mass of the same consistence and properties; but the influence of these agents is lost upon the matter of foot-rot. The plague is now known not to be so infectious as it was once thought to be, but the foot-rot will still infect the most extensive domains. The upas-tree may annihilate the existence of all that comes within its pestiferous shade; but what is that to the infection of the foot-rot, when a single sheep will contaminate a mountain? Nay, it will act even upon parts totally devoid of vitality; and such, too, is the eccentricity of its action, that it will allow its neighbouring toe to escape, and still infect the whole ground!

Was there ever any thing more absurd than the doctrine that this disease is infectious? What is the quantity of matter secreted, that it should thus operate; and in what mysterious form does it work? We find but a few drops, even in very bad cases, thrown off in many hours; yet it has been found that it does not act upon the hoof, unless the foot has been wounded. Does not common sense then declare that infection can have nothing to

do in the case? But I need not discuss this point further at present, as I trust I have already shewn that all ideas of its infectious nature are merely chimerical.

As this disease arises in consequence of the hoofs not being exposed to sufficient friction to wear them down, or keep them in their proper state, or where their natural growth is increased by the nature and moisture of the ground, the hoofs of all the flock should be regularly rasped or pared at short intervals, say from eight days to a fortnight, according to the rapidity with which a particular pasture produces the disease. In certain situations, they might be made to travel upon a hard surface similar to natural sheep tracks, or be folded in a place purposely prepared, upon which they could move about and wear their hoofs. For that purpose, they should be placed in it every day.

Driving the sheep along a hard road for a short time daily would have a similar effect; laying their tracks with gravel would also be beneficial. And, as an experiment, I would suggest to those whose lands are apt to produce the disease, to satisfy themselves by feeding an equal number of diseased sheep and sound ones together in a fold with a hard dry bottom: let that bottom be kept free from filth and moisture, and I have no doubt it will be found that, instead of the sound sheep becoming infected, the diseased ones will become sound, unless indeed the feet are so far destroyed as to require medical treatment; but even in that case, the improvement will be more rapid than under other circumstances. By the means which I have stated, simple as they are, I have no doubt the foot-rot may be made to disappear from many of those places where it at present proves a great deterioration to the value of pastures.

In conclusion, I may further add,—as the locality must be familiar to every one who takes an interest in the romantic scenery around Modern Athens,—that, while the rich pastures which are in the neighbourhood of Arthur Seat are very subject to the disease, that hill itself is not only almost entirely free from it, but if the sheep when first infected are removed from the low grounds to the hill, they soon get well; it therefore follows, that the disease may be prevented by adopting proper timely measures: and by adopting the principles I have endeavoured to establish, and applying them according to the circumstances of the infected pastures, a considerable stop may be put to the disease, and in many situations it may be altogether prevented.

I do not conceive it necessary to enter upon the cure of the

disease. Enough has been written on that subject, and many of the plans recommended are sufficient for the end: suffice it to say, that the principal points to be attended to are paring away the detached hoof, and dressing the surface with some caustic, of which muriate of antimony is the best. But as prevention is better than cure, I would recommend a strict investigation into the cases in each pasture, and, having ascertained the true cause, the proper means of prevention will be readily suggested.

Quarterly Journal of Agriculture, Feb. 1831.

THE VETERINARIAN, APRIL 1, 1831.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

[With the consent of my brother-editor, the following essay, on a subject interesting to every reader, is adopted as the leading article in the present Number.—W. Y.]

A CIRCUMSTANCE which made a deep and painful impression on my mind, has caused me to direct my attention to a subject of the utmost importance to the veterinary practitioner, as it regards his own safety, and, more especially, the safety of those whom he employs. A young veterinary friend, very incautiously and fool-hardily on his part, more incautiously and indefensibly so on the part of those under whose instructions he acted, attempted to ball a rabid horse. The animal had previously shewn himself to be dangerous, and had slightly bitten a person who gave him a ball on the preceding evening. He seized our young friend's hand, lifted him from the ground, and shook him as a terrier would shake a rat. It was with the greatest difficulty that he was compelled to relinquish his hold, and not until he had bitten his victim to the bone, and almost torn the flesh away from the upper and lower side of the hand. Proper precautionary measures were taken;— our friend bought a lesson of future caution at the expense of considerable and repeated torture, and we have no longer any fear about him.

But the question, whether the horse is capable of communicating the disease, has never been fairly agitated. Much as we have at stake in the decision of it, no one has thought it worth his while seriously to take it up. My principal aim in this article will be to bring together all that we know about it, and to endeavour to induce my brethren to favour us with the result of their experience and knowledge, and to institute a course of experiments which may possibly set the matter at rest.

It is the prevailing opinion among medical men, and veterinary practitioners too, that rabies can be communicated only by those animals who use their teeth as weapons of offence. No one denies that this dreadful malady may be propagated by the bite of the dog, cat, wolf, fox, and badger; but it is denied that it can be produced by the saliva of the horse, ox, or sheep. A gentleman high in our profession, certainly not aware of the degree of laceration, laughed at our young friend, and said that he would exchange situations with him for a pound. Sir Astley Cooper, on being consulted, treated the matter very lightly. "Rabies," he said, "cannot be propagated by the bite of an herbivorous animal. Carnivorous animals alone have that fatal power." This, we apprehend, would have been the answer of nineteen surgeons out of twenty; yet Sir Astley Cooper concluded by *wishing to apply the nitric acid to the wound:* for what reason we cannot divine, if he believed there was no danger.

Now, I ask, is there any other contagious disease which the person or the animal labouring under it, of every species, cannot propagate? Will one of this host of great men condescend to tell me of a single contagious malady, affecting a single animal, where there is this peculiar innocuousness? The human being and the quadruped, not, perhaps, with equal facility, but in numerous instances, take on almost every contagious disease, when exposed to the exciting cause of them. Speaking of the plague at Athens, Lucretius tells us,—

Cum primis fida canum vis
Strata animam ponebant in omnibus ægre.

I ask for the physiological or pathological reason or fact, which should give the susceptibility of disease to all, and confine the power of communication to a few. The malady is plainly developed; it assumes the usual character; it runs the usual course;

it destroys the patient by envenoming the whole frame, or by exhausting every vital power. There is not a character wanting but this one,—the inability of communicating the disease. We must have irrefragable proof of this before we can give credence to it, or, rather, it is evidently stamped with absurdity.

It may be replied, that every disease is governed by its own laws, and that this may be one of the laws by which rabies is governed, and that facts lead to that conclusion; for hydrophobia has never yet been traced to empoisonment from the virus of an animal that does not use his teeth as weapons of offence.

We will give this reply the attention which it deserves; for we confess that arguments from analogy are generally useless, and sometimes worse than useless, on medical subjects. The appeal is to facts, and to facts we will bow.

We will admit, for a moment, that there may not be on record a case of hydrophobia produced by inoculation with the saliva of an animal who does not use his teeth as weapons of offence; and, as this would exclude the horse, who does use his teeth as weapons of offence, we will admit further, that there may not be on record a case of hydrophobia produced by any but a carnivorous animal.

Cases of hydrophobia have multiplied of late; but they are yet rare. A medical man, in the course of a long and extensive practice, sees not more than one or two, although thousands of persons are bitten by suspected or rabid dogs. It fell to our lot to be consulted, in the course of the last year, respecting more than fifty persons bitten by dogs decidedly rabid; and Mr. Brodie stated, that out of more than four thousand persons bitten by dogs suspected, or actually rabid, since he became connected with St. George's Hospital, not one, to his knowledge, had become hydrophobous. From fortunate want of predisposition in the human being to take on the disease, or from the timely use of proper preventive measures, we may safely say, that not one person in many hundreds, bitten by dogs decidedly rabid, does become hydrophobous. Mr. John Hunter believed, that if twenty persons were bitten by a rabid dog, and no preventive measures were adopted, not more than one, on the average, would become hydrophobous.

How few are the persons exposed to danger from herbivorous animals! The sheep and the ox do not bite, and the horse has rarely the opportunity of biting, except when the attempt is made to force medicine upon him. Many thousand persons will be bitten by rabid dogs to one bitten by an herbivorous animal: therefore, the non-occurrence of the disease may be fairly attributed to the few cases of inoculation, without jumping at the conclusion, that the virus is absolutely inert.

But let us see how the fact actually stands. M. Dupuy made several experiments to ascertain this point. He took a sponge, and tied it to the end of a stick, and then presented it in a threatening manner to a rabid cow: she bit it, and the sponge became impregnated with her saliva. He then rubbed this sponge on wounds he had made on other oxen, and on some sheep, but rabies was not produced. He offered a sponge in the same manner to a rabid dog, and he rubbed that sponge, wetted with the saliva, on wounds on other cows, and sheep, and dogs, and he was enabled to produce the disease.

There are two or three things, however, to be taken into consideration, before we draw any determinate conclusion from the result of these experiments. There is a circumstance attending all inoculation, except by the tooth of the living animal, by which they who have engaged in extensive experiments of this nature have often been annoyed. If we were to expose three dogs to the bite of a rabid dog, one of them would certainly become rabid, and probably all three; but if we were to take the saliva from the animal while living, and inoculate three other dogs, probably not more than one of them would become rabid, and, possibly, not one. It would seem, that the living principle of the virus, if we can suppose it to be endued with life, is, in a manner, extinct as soon as it is separated from the animal by which it was produced.

There is likewise a most perplexing degree of caprice attending these inoculations. We have sometimes succeeded in infecting the majority of, or almost all the dogs we have inoculated. In other cases, although the disease was undeniably present in the dog from whom the virus was taken, we could produce no

effect at all. A gentleman who imagines that he has a very powerful agent in controlling hydrophobia;—who thinks that he has succeeded in two cases, and only waits for the result of a third to make the important discovery—took a great deal of pains in inoculating a dog at my house, from one clearly rabid. Months passed away, and at length the animal died of a very different disease. The brother of an eminent lecturer in one of our hospitals wished to institute some experiments, and he very carefully inoculated a dog for that purpose, without effect. Not one of the five last dogs that I inoculated, in order to try the power of certain medicines, became rabid. Therefore, although the production of the disease would be proof positive of the power of communicating it, the effect of one, and even of several inoculations, might raise doubts as to the power of communication, but would not settle the question. Some professors of the French school have denied that it was possible to produce rabies by artificial inoculation from *any* animal. Here they are evidently wrong, for it has been produced again and again. These facts, however, prove that no conclusion can be drawn from the *failure* of artificial inoculation.

Now, then, as to the effect which *has been produced* by inoculation with the saliva of these innocuous animals. Man used to be placed among them. There were some instances, of rather doubtful authority, of hydrophobia being produced by the saliva of the human being. A father, in the last stage of hydrophobia, imprinted a parting kiss on the lips of his child, and the infant died hydrophobous. This case stood almost alone, and was not by many acknowledged to be genuine; and from the immunity which the attendants on hydrophobic patients seemed to possess, although they were often covered with the spume, and a portion of it must have occasionally fallen on some abraded surface (in the case of the poor boy who lately died at St. Thomas's, some of it was received in the eye of one of the assistants), it became the general belief among medical men, that hydrophobia could not be communicated by the saliva of the human being, and for this sapient physiological reason, that he was not one of those animals who use their teeth as weapons of offence.

MM. Majendie and Breschet, however, set this matter at rest, for on the 19th of July 1823, they inoculated two dogs with the saliva of a hydrophobic man, and who died on the same day. One of the dogs became rabid, and communicated the disease to other dogs, and to some sheep. Some time afterwards Mr. Earle confirmed (if it had wanted confirmation, for one fact here is as good as a thousand) the possibility of the communication of hydrophobia by the human being. In administering medicine to a woman hydrophobous, he was bitten by her, and he immediately excised the bitten part. Being joked on account of his unfounded fears, he inoculated several rabbits with the saliva of the woman, and some of them became rabid. Man then, an omnivorous animal, and not using his teeth as weapons of offence; was clearly proved to be capable of communicating the disease.

The anti-contagionists now changed their ground. Rabies might be communicated by an omnivorous animal, for he was but a little removed from a carnivorous one; but the graminivorous or herbivorous animal—no, he could never propagate it. I must follow these gentlemen in their retreat—for although retreating, they were bold and confident.

Palmarius (De Rab. Contag.) relates, that some horses and oxen that had eaten the litter that had served for the bed of some rabid pigs, became also rabid. He says that he was an eye-witness of this fact.

Drs. Beddoes and Stock, in the year 1807, accompanied Mr. King of Bath, to see a rabid cow, at Weston, near that city. Mr. King wished to experiment with her saliva, and he inoculated a barn-door hen with it, who, ten weeks afterwards, "was observed to run at other fowls, and to refuse her food. She had a wild strange expression, and her eyes were bloodshot. Early in the following day, her legs became contracted, so that she very soon lost the power of standing upright. She remained sitting with her legs rigid, refusing food and water, and appearing very irritable when touched, and she died in the evening. There was great inflammation about the cicatrices—the trachea and œsophagus were considerably inflamed, and the vessels of the

brain were distended with blood" (*Med. Gazette, June* 1828). Here is plainly enough rabies communicated to a biped graminivorous animal by the saliva of a cow.

M. Vern relates, that a rabid ass communicated the disease to a horse which stood by his side, and which died (TROLLIET *Traité de la Rage*, p. 268). This seems to be a case perfectly in point, and that admits of no appeal. The failure of the experiments of the French professors only proves that the transmission of the disease is difficult.

The saliva of the ruminant or the herbivorous animal may not be so saturated with the virus as that of a carnivorous one; and it has been sufficiently established, that there is difference in the power of communicating the disease even in carnivorous animals. The great majority of human beings would escape, although bitten by a rabid dog; but, so far as experience goes, the great majority of those bitten by a wolf perish. So, I can imagine, that the disease shall not be so readily communicated by the saliva of the graminivorous animal; and this, added to the few instances in which the human being can be bitten or wounded by the graminivorous animal, may have led to the belief that it could not be communicated at all. Here, however, are a few facts to which, from my own experience, I am enabled to add three more; for I have once produced rabies in the dog by inoculation with the saliva of the ox, and twice with that of the horse; but I have failed to do it in very many cases.

There are also facts on record of hydrophobia being communicated to the *human being* by the saliva of graminivorous animals. They are also few; but they establish the *possibility* of the thing. I will not recur to the strange stories of tetanus having been produced by the bite of enraged animals, and even by that of a cock and a duck; but M. Duplanie relates an instance of a man having been bitten by a rabid hare, and dying hydrophobous (*Portal*, p. 128).

There was an account, two years ago, of a groom dying hydrophobous from the bite of a horse. The circumstances and the authority I have not recorded. Some veterinary reader, to

whom the case is known, will probably favour me with the particulars.

Then it appears that herbivorous or graminivorous animals are capable of propagating the disease; and I do not hesitate to express my conviction, that every animal capable of being affected by the disease can propagate it. On a subject, however, so important, and opposing, as I do, the generally received opinion of medical men, and the expressed opinion of some of deservedly high reputation in my own profession, I would earnestly solicit the communication of the experience of my brethren; and I would endeavour to engage them in a course of experiments, so far as they can conveniently and safely pursue them, that all doubt may be removed on this very interesting point. I do not scruple to confess, that I have no doubt at all about the matter; but I would have my limited experience confirmed by that of others.

In the mean time we are not justified in exposing ourselves, and least of all our assistants or menials, to danger. Simple and common medicine should be given in no case: it is playing with the disease, and playing with our own safety and that of others. A dose of physic, or a little nitre, will be powerless in such a disease, and will not add to our reputation. Some new medicine must be exhibited, or that which in other cases has promised to produce effect, and that, if there be the slightest excitation about the horse, must be given in his water, which he will seldom refuse, and of the altered taste of which he seems not to be conscious. The head or arm, unless defended by a thick and long glove, may be scratched in balling the horse that seems not to be disposed to do mischief; while it should never be forgotten, that there is in rabies a degree of treachery, a deeply laid plan to lull suspicion, and assuredly to accomplish mischief, of which they only who have watched the progress of the disease can form an adequate conception.

I would once more, and earnestly, request a communication of the experience of veterinary practitioners, for or against the propagation of rabies by graminivorous animals, or by all who are susceptible of the disease.

Review.

Quid sit pulchrum, quid turpe, quid utile, quid non.—Hor.

A Practical Treatise on Glanders and Farcy in the Horse, descriptive and explanatory of its origin, progress, and termination, and the most effectual methods of treatment and cure; by Richard Vines, *Teacher of Anatomy and Physiology at the Royal Veterinary College.* Longman and Co. London, 1830.

So rare is any emanation of a literary nature from the Royal Veterinary College, that it is with no small measure of gratification we hail the appearance of the present production. Going on for forty long years has the College stood on its foundation, the last thirty of which has been a period of unbroken silence in regard to any presentment to Minerva, save and except that instructive little work, the "Report" of the Professor's Assistant, and which now is only to be found in the cabinets of the curious. There most certainly was, however, an epoch, somewhere about the year 1825, when Mr. Sewell *did* intend to break in upon this awfully long interval of silence—at least, he *advertised* his intention of publishing a work on glanders: why or how it came about that this intention was frustrated, we cannot say; nor, it seems, are we likely to learn, since Mr. Vines assures us, that "he (Mr. Sewell) is not *remarkable* for being communicative on *any* subject!" and, in fact, all that Mr. Vines "has been able to collect respecting the particular notions of the Professor's Assistant," he has gleaned from The Veterinarian. To say the least of it, this appears very unsocial between fellow "*teachers of anatomy and physiology*" at the same institution. Mr. Vines, however, confesses afterwards, that he heard Mr. Ganley say, "that *he* (Mr. Ganley) first communicated M. Dupuy's opinion on glanders to Mr. Sewell, and that he (Mr. Sewell) acknowledged it to be *quite new*, and *received it as a correct theory*." But, no matter. The Governors of the Veterinary College have bestowed some very liberal remuneration upon the Professor's Assistant for this (to use Mr. Vines's expression) "*extra exertion* of his *talents!!*"

Very little can be gleaned from the writers of the past ages concerning glanders. In its more simple forms it appears to have escaped their notice altogether; and in its complicated and fatal stages, to have been beyond the sphere of their patho-

logical investigations. Indeed, nought but obscure and unsatisfactory notions floated about in the minds of veterinarians prior to the time of Lafosse. He it was who first ventured anything in the shape of a definite opinion in regard to the pathology or nature of glanders; and it was the apparent success which attended his experiments, combined with the distinguished reception and reward his "discoveries" met with, that first aroused veterinarians to direct their attention to so vital a subject.

Of all others, Dupuy has prosecuted these inquiries with the greatest benefit to the veterinarian. He has not only shewn that Lafosse and his disciples were quite deluded when they took up the notion that glanders was a mere *local* disease; but has made it pretty manifest to us, that glanders is a disease, in too many instances, of such a nature that the constitution itself is undermined, and there remains nothing to work upon in order to hold out the least physical possibility of a cure. To Dupuy most especially it is, that we owe the disheartening fact, that in the advanced stages of the disease, as well might one look for a restoration from a confirmed pulmonary consumption in man, as expect, from any remedies we may or can employ, a cure for glanders. We do not go quite so far as Mr. Sewell, who pretends that he can discriminate these hopeless cases *in the dark* by the *pulse*; but we admit that they are commonly too truly indicated at first sight to admit of the shadow of a doubt.

After adverting to the different opinions that have been framed, and the endless confusion consequent on such difference, on the nature and causes of glanders and farcy, Mr. Vines proceeds to give a general outline of his own ideas on these subjects.

"All the symptoms of disease which constitute glanders and farcy invariably depend upon the *unhealthy state of the system* into which it is reduced or brought, and not, as is generally supposed, from a *specific poison* contained in the blood. When the system is brought into an unhealthy, and more or less debilitated state from neglect, or by the improper treatment of any disease (such as strangles, catarrh, inflammation of the lungs, grease, dropsy, injuries, &c.) and the following symptoms occur, they then constitute glanders or farcy. And as these symptoms only indicate the unhealthy state of the system when they follow such inflammatory diseases, they may be regarded as ending in or becoming glanders or farcy."

"But, nevertheless, there are many instances where the symptoms which constitute glanders and farcy take place totally independent of common inflammatory and healthy (*Query*) diseases;

but even then the symptoms likewise depend upon the unhealthy state which the system is in previous to and at the time of their appearing or taking place; and consequently *the system must ever be in an unhealthy state for the symptoms of glanders or farcy to shew themselves.*"

"Under this view of the subject, then, it must appear that glanders and farcy are nothing more nor less than terms indicating *unhealthy disease* of certain parts of the body, particularly those of the mucous membrane which lines the nose, the substance of the lungs, the skin, and the cellular membrane underneath."

When it is considered how many horses are pronounced to be glandered whose general health appears to be unaffected, and when we come to reflect how common the remark is, that, were it not for the nasal disease, any one would be ready to declare the animal to be at the time in the enjoyment of the fullest health, we must confess we were not prepared to hear that glanders and farcy essentially consisted in (or depended upon) an *unhealthy* state of the *system.* Only a few days ago an anecdote was related to us of a cavalry soldier, who, in the peninsular war, with his horse at the time in a state of declared glanders, opposed and beat off, single-handed, a whole rank of advancing infantry; and the numberless instances that might be brought forward of glandered horses maintaining their condition, and for years performing all that the most healthy horses would be equal to, seem to operate, we must say, most strongly against these "ideas" of Mr. Vines's. However, let us proceed further.

"In common inflammatory diseases the system is always in a more or less healthy state; but on the contrary, when those symptoms of disease which constitute glanders or farcy occur, *the system is always in a more or less unhealthy state;* and in proof of this I may advance, that diseases of a common inflammatory nature, such as strangles, colds, inflammation of the lungs, grease, injuries, &c. from neglect or improper treatment, frequently degenerate into what is termed glanders or farcy."

"The diseases of every animal will therefore assume a character according to the state of the system; that is, if the animal should happen to be in a healthy state when an inflammatory disease takes place, a healthy inflammatory action will be the result; but if, on the contrary, the animal should be in an unhealthy state, then an unhealthy inflammatory disease will be the consequence."

This, barring some strange ambiguity and misappropriation of terms, is good sound pathology, the frequent applicability of which

cannot for a moment be doubted; nor do we deny that it is very proper theory in numerous instances of the diseases in question—glanders and farcy: but, to say that these diseases are *essentially* or *necessarily* connected with an unhealthy condition of *system*, is, in our humble opinion, to assert that which facts in general do not go to support. We are perfectly aware that where catarrh, inflammation of the lungs, grease, injuries, &c. take (as it is called) an untoward turn, that glanders or farcy, or both, are very likely to supervene; and we are ready to admit that the explanation Mr. Vines has given, may be resorted to as the solution of this unfavourable change. But Mr. Vines must remember that there is *another* way of accounting for these changes; which is this—that there existed, prior to the "*unhealthy inflammation*"—the catarrh, or whatever it might be—the rudiments or seeds of glanders or farcy in the system, which only awaited some diseased or altered action to bring them into operation. If glanders and farcy depend for their origin and existence upon an *unhealthy state of the system*, how, we repeat, are we to explain those cases in which the system, to every appearance, preserves its full vigour—cases which have their origin in the most salubrious situations, and some of which continue for years to preserve their locality, without, in the remotest manner discoverable, interfering with the *healthy* condition of the system; while others, all at once, change their nature, proceed rapidly to the destruction of the parts the disease inhabits, and that disease, with no less fatal certainty than rapidity, persecutes its victim to the last groan of his afflicted life?

To an account of the local "appearances and symptoms" of glanders, Mr. Vines subjoins the following:—

"The animal is generally more or less off his stomach, appearing languid and weak, and altogether out of condition, with a rough and unkindly coat; and as the symptoms of the disease increase or proceed, the appetite becomes still more diminished, and the system weaker: profuse sweating comes on from slight exertion: the membrane and discharge from the nostrils become more unhealthy, the ulceration extends, and such cases as have hitherto been without ulcers, at this period or stage of the disease most generally exhibit them. But it is necessary to bear in mind that there are some cases where ulcers exist in the membrane, as well as some where they do not, when the appetite is tolerably good, and the animal capable of undergoing moderate exertion by performing a certain quantity of labour; and this state may continue for some time where care is taken; but these cases, when neglected, ultimately exhibit similar symptoms to those already stated."

In such cases as this description applies to, we are very ready to admit that the *system is in an unhealthy state.* But we must not pass unheeded the numerous cases that have come under our observation, where the animals have done all that horses in health, in their situation, would have done; and where they have done so for years, to the benefit of their masters, and the mystification of the veterinary pathologist. We have known men who have kept *teams* of glandered horses on their farms; and though, on occasions, one would "get bad" and die; yet, generally taken, would they do their work and support their condition, in spite of the nasal affection, as though they had no such malady. We cannot doubt but what Mr. Vines must have seen such cases himself; but possibly our opportunities may have been somewhat greater than such as the Veterinary College affords him. And this it is that leads us to give our opinion so confidently, that glanders cannot be said, in *all* its states and stages, essentially to depend upon an *unhealthy condition of system.*

"A *cough* is sometimes a symptom both of glanders and farcy, and occasionally it indicates disease of the lungs, a state in which they are in some instances found after death; but there are cases, both of glanders and farcy, where *no disorganization or alteration of those parts, or any disease of the lungs, is to be found;* when the only unnatural appearances to be observed are, that these parts, together with all others of the body, are much whiter in colour, and weaker in texture, than is usually found to be the case in those animals which are destroyed when in a perfect state of health."

Most certainly the lungs are *not* invariably or necessarily diseased in glanders; and therefore glanders cannot be said either to originate or have its primary seat in those organs: we have always reasoned in this manner on the point ourselves; and we are gratified to find that (although Mr. Sewell, we believe, is against us) Mr. Vines, as well as Mr. Coleman, are of our way of thinking. And this is an important fact; because it enables us to account, in some measure, for the uninterrupted constitutional health and strength many glandered horses enjoy, through which they are often able to continue at work for a very considerable length of time.

Both glanders and farcy are very often the sequelæ of other diseases; and this happens, we believe, in the way in which Mr. Vines has represented to us it does, viz. in consequence of the *unhealthy* turn the primary disease takes, either of itself or induced by injudicious treatment. "The inflammatory diseases which glanders and farcy most frequently follow, are those termed strangles, common colds, distemper, acute and sub-acute

inflammation of the lungs, general or local dropsy, and the latter, whether it occurs from general or local debility, conjointly with grease, or injuries of different parts of the body or not.

"When such changes as these take place, and the discharge and ulcerations become unhealthy, the disease with which the animal was before afflicted is now altered from its original character; and under these circumstances the animal is usually considered to have become *glandered* or *farcied*."

"Glanders and farcy not only follow such diseases as have first been mentioned, but also appear sometimes in unhealthy and debilitated animals, from over-exertion and other causes, and without being preceded by any of the former-named diseases of a common inflammatory character; and this is occasioned by *the system being reduced to an unhealthy state*, from the same causes as those which, in more healthy and vigorous animals, would be found to produce strangles, common colds, inflammation of the lungs, &c."

From what has already passed between us and our author, it will be seen, that we differ from him whenever he asserts that an unhealthy condition of system is *absolutely necessary* to the production of glanders; at the same time, we admit that the disease often makes its appearance in such a state of system, and is the usual sequel of the diseases he has mentioned, whenever those diseases take an *unhealthy turn*.

In order to reconcile these apparently contradictory facts, we must call into the question the Protean character of glanders and farcy, and consider them in their acute, sub-acute, and chronic or inactive forms. That they will invade the most healthy and vigorous subjects occasionally, is too notorious a truth to admit in our mind of any argument; but, for all that, we are ready to subscribe to what our author says about their attacking unhealthy systems; and we can also bear him out when he states that "debilitated animals" are likewise very disposed subjects, their debility arising "from over-exertion or other causes." The coach and posting establishments furnish instances enough of this; which have, by those of another school, been ascribed to a foul and contaminated atmosphere. But there is one case that will, at least as far as it goes, set the latter opinion on one side; which is, that glanders and farcy have been seen to be the consecutive effects of pure over-exertion from the chase; at least, we ourselves have witnessed such cases: and *they* most assuredly can be adduced, if any can, to prove that glanders and farcy may be *produced by over-exertion*, or its natural consequence, *debility*.

We admire the manly and independent style which Mr. Vines occasionally assumes; but we had some unpleasant feelings when

we read (p. xv) that it was his object to "correct the striking errors into which he (Professor Coleman, another 'teacher of anatomy and physiology at the Royal Veterinary College') has fallen, and in some degree to counteract their dissemination, by putting into the hands of the profession, the student, and the public, a work which the author flatters himself will prove a satisfactory check to the too prevailing influence they have hitherto enjoyed;" and when, in addition to the account already given of Mr. Sewell's (another "teacher of anatomy and physiology at the Royal Veterinary College") uncommunicativeness, we also read (p. 179), "as Mr. Sewell has long boasted of possessing a cure for glanders (sulphate of copper given in solution), I hardly need inform my readers, who are acquainted with his disposition, that cantharides has not yet received at the college a sufficiently fair trial in glanders." We presume not to decide who is right or who is wrong; but all this is in very bad taste among brother teachers in the same school. If there be this contrariety of opinion, and this avowed hostility, among the professors, there must be "something rotten in the state of Denmark." If the luminaries of our art are thus wandering in error, little is to be expected from the profession; and God help the poor students. Who shall guide them when their masters thus disagree? What settled principles can they acquire amid this confusion worse confounded? They had much better be content with the little knowledge they can acquire at home than go to the College to be thus "puzzled in mazes and perplexed with errors."

But seriously, and apart from Mr. Vines's work, this difference of opinion among the professors is a growing evil, and one that ought to be remedied, and it is and must be fatal to the proper improvement of the students. Mr. Coleman, if we understand it, is the professor; Mr. Sewell is the professor's assistant; and Mr. Vines is the assistant demonstrator. Mr. Coleman is to teach the grand principles of physiology, and the treatment of disease; Mr. Sewell is to illustrate the application of these principles in the clinical department, of which he has the superintendance; and Mr. Vines is still further to illustrate and confirm them, by references to more minute anatomy than the lectures of the professor could embrace. Here is a gradation of officers and of offices well adapted to prepare the pupil for the scientific practice of his art. He may be led on, step by step, intelligibly and without confusion, to the important object at which he aims. But when Mr. Coleman teaches one thing, and his assistant, instead of illustrating, confounds and subverts it; and the demonstrator proves, or endeavours to prove, that both were in the wrong, and have committed "striking errors," the "dissemina-

tion" of which should be "counteracted;" we ask again, how is the object of the institution to be accomplished, or what is to become of the poor pupil?

Either Mr. Coleman is, or is not capable of teaching physiology and the treatment of disease. About this, although he may not have kept full pace with the advance of veterinary science, and although he may push some of his favourite theories to an absurd and ludicrous extent, there can be no question. If those about him think otherwise, let the proper representation be made in the proper quarter. If there be those who do not believe in, or cannot uphold Mr. Coleman's grand and favourite theories, let them take the course which, in every other situation, good sense and honourable feeling would indicate.

The constitution of the College might indeed be changed most materially for the better. There might be three or more professors, and each might have his separate department of anatomy or physiology, or the treatment of disease, and in different animals; and each might expound his own views and theories, without interfering with the authority, or encroaching on the province of the other. This would be a most material improvement; but when there is actually but one professor—one premier and his assistants,—a ministry must be unanimous, or it cannot be effectual. The education in every school must be conducted according to certain recognised principles. And who is to determine on these principles but the master of the school, or the appointers of the master.

We say, therefore, again, and for the sake of Mr. Coleman, and of the school, and of the pupils, that while the Veterinary College is constituted as it is, that which the Professor teaches his assistant should illustrate, and the demonstrator confirm; and if they cannot conscientiously do this, there is a course open before them; and they ought not to compromise the reputation of the school, or the improvement of the pupil. We do not admire this avowed opposition—this declared warfare—between the professor and his assistants. It is not in good taste. It does no credit to anybody We duly appreciate the independent spirit which Mr. Vines has assumed in this publication; we acknowledge his right to form his own opinions, and to bring them before the public, but not to the compromise of other duties.

On the whole, we cordially recommend this work to the consideration of our readers. There is much good stuff in it, perhaps encumbered and obscured by an arrangement far too complicated, and sometimes unintelligible; and by a constant reference to authorities never good for much, and long obsolete, and compared with which one sentence of Mr. Vines's would

be worth twenty pages. We have likewise to complain, that our author has somewhat too frequently displayed his proficiency in the art of ingeniously tormenting; for when we have followed his reasoning with considerable pleasure through one of his far too numerous sections, and are arriving we think at a conclusion in which we shall heartily acquiesce, or a discovery that we shall hail with delight, we turn the leaf, and a title bearing no affinity to the subject we were pursuing, annoys and confounds us; and when, many a page afterwards, we again hit upon our favourite topic, the charm is broken, and neither we nor the author can do justice to it.

As to the remedy which Mr. Vines proposes—cantharides with vegetable tonics—he tells us that he has given it with "highly beneficial results;" but as he does not favour us with any detailed history of cases, stating the nature and extent of these results, we can only refer our readers to the account which he gives of it in the work itself, in language strong enough, but much too general to satisfy us. We sincerely hope that Mr. Vines may derive reputation, and something more solid, from the publication of this work; and that his remedy may not follow too many others, we were going to say, every boasted specific in such a disease, to the tomb of all the Capulets.

Extracts from Journals, Foreign and Domestic.

Hepatirrhœa (l'Apoplexie du Fois).

By MM. Dupuy *and* Prince.

[Journal Pratique, January 1830.]

A horse appeared to be unwell. It ate little and slowly for nine days. It was then taken from work; but before the illness disappeared was sent again to its usual task. It had not travelled more than an hour, during which it seemed to throw itself with spirit into the collar, before it fell, struggled for a few seconds, and died.

It was opened eight hours after death. The abdomen contained nearly two buckets full of blood. The liver was treble its natural size, and had displaced, above and to the left, the stomach and the spleen. The serous membrane of the liver was torn irregularly across the whole of the posterior face of the right lobe, and farther laceration seemed to have been prevented by an enormous clot of blood retained on the membrane by fibrous prolongations.

The substance of the liver was not torn, and it was of a pale yellow colour, its granulations not very distinct; yet it had little consistence, and seemed to disappear by the simple act of washing. In other lacerations of the liver its substance remains the same, and no clot of coagulated blood is found.

The middle lobe presented similar lesions, with the exception that the clot of blood spread itself under the peritoneum, and had not ruptured that membrane. There was neither rupture nor hæmorrhage in the left lobe, but which presented the same altered tissue. On the middle of its anterior face was an ovoid cyst, six inches long and three wide, with its walls thick and fibrous. The internal coat of the cyst was covered by a dark red, fibrous substance, having the appearance of muscle. The spleen was softened, and its tissue lacerated by the slightest pressure.

Another horse, after being driven rapidly for twelve leagues, heaved sadly at the flanks, and the breathing was accompanied by a peculiar rattling. On the following day the animal passed with difficulty urine highly reddened with blood. Injections were administered, and it was brought to the school at Alfort. The conjunctival, nasal, and buccal membranes were pale, and somewhat livid; the base of the ears and the extremities, and, indeed, the whole of the frame, were cold; the animal was in one continual and violent trembling, so that it was impossible to ascertain the state of the pulse. The horse staggered and fell; arose after a few minutes; once more fell, and died in a few seconds. The middle lobe of the liver was torn, the right was gorged with blood, and the left in its natural state. The portion which was torn was yellow, softened, and divided into little masses: there seemed to be black blood effused through the whole organization of the liver. Much black blood was found in the abdomen. M. Dupuy imagined that, in the rapid travelling of the horse, a great quantity of blood had penetrated into the tissue of the liver, and had lacerated the parenchymatous substance of that organ; that in the fall of the animal the capsule was torn, and that the effusion into the abdomen only preceded the death of the animal a few minutes.

A third horse staggered and fell in consequence of a severe and sudden lash of the whip. He struggled a few moments, and died. A portion, not only of the capsule, but of the substance of the middle lobe of the liver, was torn three inches long, and one inch in depth. About eight pounds of blood were effused in the cavity of the abdomen.

The Errata referred to by Mr. Ralston shall be noticed at the end of the volume.

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ANATOMY OF THE HORSE.

[Continued from p. 184.]

2.—SUPERFICIAL POSTERIOR FEMORO-CRURAL REGION.

THE muscles contained in this region are all affixed to the os calcis, and thereby become extensors of the hock: one of them is continued afterwards down the leg, to be fixed both to the fetlock and pastern, and hence operates as a flexor of those parts at the same time.

GASTROCNEMIUS EXTERNUS——*Bifemoro-calcaneus.*

Situation.—Superficial; along the posterior part of the leg.

Figure.—Elongated: flattened from before backwards; broad, thick, and bifurcated, superiorly; united and cordiform, inferiorly.

Attachment.—Superiorly, to a roughened hollow just above the external condyle of the os femoris, to the inner condyle, and to a ridge extending from it: inferiorly, to the point of the os calcis.

Relations.—Posteriorly, with the faschia and skin; anteriorly, with the condyles of the femur, gastrocnemius and plantaris, muscles of the deep posterior crural region, and the popliteal bloodvessels and nerves; externally, with the biceps; internally, with the adductor magnus and adductor tibialis.

Direction.—Downward and backward.

Structure.—The superior and middle parts are bulky, and consist principally of a fleshy belly, bifurcate, whose surfaces are partially covered by aponeurosis, discovering inferiorly a few tendinous intersections. A little below the back of the stifle, the bifurcations unite and form one entire fleshy belly, glistening in many parts with tendinous fibres. Midway between the hock and stifle the belly ends in a flattened tendon, partially divisible into two or three portions, and decussates with the tendon of the gastrocnemius internus, by which at the hock it is completely enveloped.

Action.—To extend the hock.

GASTROCNEMIUS INTERNUS.—*Femoro-phalangeus.*

Situation.—Postero-mesian part of the leg.

Form.—Cordiform; elongated; thicker in the middle than at the extremities. Its tendon, below the hock, is flattened, and upon the anterior surface excavated.

Attachment.—Superiorly, to the upper part of the roughened hollow upon the back of the os femoris, above its external condyle. Inferiorly, it is continued over the hock, down the posterior part of the leg, to be fixed to the os coronæ.

Relations.—Posteriorly, with the gastrocnemius externus and skin; anteriorly, with the stifle joint, the muscles of the posterior deep crural region, tendons of the gastrocnemius externus and flexor perforans. The first crural nerve runs also along the front side.

Peculiarities.—Remarkable for the little difference in volume there exists between the fleshy belly and its tendon; and in being entirely tendinous until it has descended to the stifle.

Structure.—The belly of this muscle is of considerably less volume than that of the gastrocnemius externus; but it has more tendon in its composition. About half way down the thigh it becomes entirely tendinous; and its tendon, which is flattened, turns round that of the gastrocnemius externus in approaching the hock: so that the relative position of the two muscles becomes reversed in their tendons. In passing over the point of the hock the tendon expands into a sort of cap or *theca*, which is so fixed and closed in around its border, by cellular substance, to the bone that a complete ball-and-socket joint is formed between them, circumscribed within the space of about an inch from its centre all the way round, and lined by a thin delicate membrane secreting synovia into the interspace. It constitutes, in fact, altogether, what is denominated a *bursa muscosa;* but is one that, from its size and disposition to take on disease, peculiarly merits the attention of the anatomist. From this bursal formation it proceeds down the posterior part of the leg; and from the place at which it leaves the hock takes the name of *tendo perforatus.* Its subsequent course and attachment, together with its relations to the *tendo perforans,* answer to the descriptions given of the tendons of the same name in the fore extremity.

Action.—To extend the hock: but to flex the fetlock and pastern.

PLANTARIS.—*Peroneo-calcaneus.*

Situation.—Postero-external part of the thigh.

Form.—Elongated; thin; slender.

Attachment.—Superiorly, to the head of the fibula; inferiorly, (in union with the tendon of the gastrocnemius externus) to the os calcis.

Relations.—Externally, with the skin; internally and posteriorly, with the gastrocnemius externus; anteriorly, with the deep posterior crural muscles. The third popliteal nerve crosses its superior extremity.

Structure.—This is the most slender muscle, in proportion to its length, in the body. Its delicate belly, composed of pale fleshy fibres, and constituting two-thirds of its length, sends off an equally delicate cordiform tendon, which unites inseparably, just above the hock, with the external tendon.

3.—DEEP POSTERIOR FEMORO-CRURAL REGION.

The muscles contained in this region lie deep-seated, in the interspace between the tibia and the gastrocnemii. They are covered and tensely bound down by a dense firm tendinous faschia.

POPLITEUS.—*Femoro-tibialis Obliquus.*

Situation.—At the back of the stifle-joint.

Form.—Short; thick; triangular.

Attachment.—Superiorly, to the postero-external side of the outer condyle of the femur, and to the capsular ligament of the stifle-joint. Inferiorly, to the upper half of the inner side of the body of the tibia.

Relations.—Posteriorly, with the gastrocnemii internus et externus, the semilunar cartilages, the postero-internal side of the head and the superior part of the body of the tibia: also, with the popliteal artery and vein. Externally, with the internal lateral ligament; internally, with the gastrocnemius externus. Superiorly, with the condyles of the femur; inferiorly, with the flexor pedis accessorius.

Direction.—Of the *superior* fibres, nearly transverse; of the *inferior*, obliquely inward and downward.

Structure.—Its supero-external attachment consists of a flattened and partially cleft tendon, which plays over the back of the outer semilunar cartilage. This tendon is inclosed within a duplicature of the capsular ligament; but (notwithstanding that) is shut out by the internal fold of that duplicature from the cavity of the stifle joint. The tendon finally sinks into the fleshy part of the muscle, whose substance still in places discovers some scanty tendinous intersections.

Action.—To bend the stifle; and at the same time to turn the

tibia inwards. It will also extricate the capsular ligament from being pinched between the bones.

FLEXOR PEDIS.—*Tibio-phalangeus.*

Situation.—Postero-external side of the limb.

Figure.—Fusiform; elongated: fleshy part, thick.

Attachment.—Superiorly, to the postero-external side of the head of the tibia; to the supero-posterior half of the body of the bone, and to the posterior side of the fibula. Inferiorly, the tendon assumes the name of *tendo perforans*, and is disposed of in a manner so similar to the tendon of the same name in the *fore* extremity as to render any description of its lower attachments here quite unnecessary.

Relations.—Posteriorly, with the plantaris and the gastrocnemii, and also with the posterior tibial bloodvessels; anteriorly, with the tibia and fibula. Superiorly and internally, with the flexor accessorius; externally, with the plantaris and the flexor metatarsi.

Structure.—Superior attachment, both tendinous and fleshy, from which at the back of the hock proceeds a strong cordiform tendon, which passes within a groove upon the inner side of the os calcis and runs down the posterior part of the leg, where it becomes connected with the tendons of the flexor accessorius and gastrocnemius internus. With the former of these it unites, and the two together form a single tendon; but with the latter, the union is only one formed by cellular membrane. This tendon is denominated the *tendo perforans*, in contra-distinction to that derived from the gastrocnemius internus, which (as was before observed) is styled the *tendo perforatus*. Both tendons are inclosed within the same sheath; and are, in fact, disposed of down the leg and foot in a similar manner to what the corresponding tendons are in the fore extremity: on which account any further detail would prove but recapitulatory.

Action.—That of the gastrocnemius internus corresponds to that of the externus: it extends the hock. But, as it continues down the leg through the medium of the tendo perforatus, it will also flex the fetlock and pastern joints. The flexor pedis will prove of some effect in the extension of the hock: although its principal operation is upon the foot, which it alone flexes; and at the same time it flexes the pastern and the fetlock.

FLEXOR PEDIS ACCESSORIUS.—*Peroneo-phalangeus.*

Situation.—Deep seated: postero-internal part of the leg.

Figure.—Elongated; fleshy portion pyramidal.

Attachment.—Superiorly, to the postero-external part of the head of the tibia: inferiorly, it becomes inseparably united with the tendon of the flexor pedis, about one-third of the length of the cannon downwards.

Relations.—Posteriorly, with the gastrocnemii; anteriorly, with the body of the tibia, and the posterior tibial artery and vein. Superiorly and internally, with the popliteus; inferiorly and externally, with the flexor pedis.

Structure.—Superior attachment, fleshy and tendinous; afterwards entirely fleshy, and so it continues until it ends in a tendon which issues from its very centre. Its fleshy belly crosses obliquely over to the inner part of the leg, where it terminates, midway between the stifle and hock, in its cordiform tendon, which passes through a theca at the inner side of the hock. Opposite to the head of the great metatarsal bone it runs in the same sheath with the tendon of the flexor pedis, with which it ultimately forms one common tendon.

Action.—It operates as a coadjutor to the flexor pedis.

[To be continued.]

Communications and Cases.

Ars veterinaria post medicinam secunda est.—VEGETIUS.

DISTRESS OF HUNTERS.—CASE OF SPASM OF THE DIAPHRAGM.

By Mr. J. CASTLEY, V.S. 12*th Lancers.*

"Press not the generous steed too far."

NIMROD, in one of his excellent papers "On the Condition of Hunters," which he published in the Sporting Magazine some years since, is the first, as far as I know, who has called the attention of horsemen to this point. I am not aware of its being noticed by any writer, veterinary or other, before him. "When a horse," he says, "is much exhausted after a long run with hounds, a noise is sometimes heard to proceed from his inside, which is erroneously supposed to be the beating of the heart; whereas it proceeds from the excessive motion of the abdominal muscles." (*Sport. Mag.* vol. xiv, N. S. page 329).

Now this is a thing by no means of so frequent occurrence as one would at first be led to suppose, from the frequency of horses being pressed to exhaustion. As some proof of this, I can only say that, although I may lay claim to a considerable share of practical experience, I have never seen but one well marked instance of it; and that has occurred very lately. After the mention of this circumstance by Nimrod, which shews him to be a man of great observation, as well as an accomplished horseman, we find a dispute in the Sporting Magazine, as to whether the noise proceeded from the abdominal muscles or from an increased action of the heart only. Mr. Smith, of Woodhouse, contends that it is nothing more or less than the beating of the heart; whilst my friend Mr. Sewell, of Brighton, maintains Nimrod's position. It is only by actual observation that a point like this can be cleared up and set at rest: and it is chiefly in reference to this disputed point that I venture to think the case I have had an opportunity of witnessing may be sufficiently interesting to be worthy of being put on record.

Lord Howth, who is a keen sportsman and a first rate horseman, seems to have brought stag hunting much in fashion in the neighbourhood of Dublin: at present it is a very prevalent amusement here, the country a little way to the west of the Irish metropolis affording an excellent arena for this sport. There one may go and have a good gallop any day—be always certain of a run—and sometimes find an opportunity of satisfying the keenest nag alive. It is, perhaps, rather riding than hunting: his heart, however, must be truly British who goes in the first flight with Lord Howth.

Mr. C., a young officer of this garrison, has a very fine thoroughbred horse, which he has ridden several times with my Lord Howth, and which is reputed a good hunter: he certainly possesses many of the essential qualities that give a claim to that character; being of a cool, courageous temperament; a remarkably good leaper; and I should say, fast enough for any hounds in the world. Although he is by no means a horse of a fat or gross habit, yet on the occasion to which I allude he was in no condition to go, having been laying by for ten days or a fortnight, in consequence, I believe, of some accident; and besides this, by some mistake he had been allowed to drink plentifully of water late in the morning of the day on which he was taken out to hunt. Lord Howth turned off a stag at a short distance from Dublin, which gave them a quick run of near an hour without a check, going a distance, it is supposed, of about thirteen miles, across a country much intersected with wide ditches and high banks. Towards the latter end of the run, Mr. C. (who by the way is but

a light weight) says he found his horse a *good deal blown*, and he fell with him, an accident which he supposes gave him time to recover his wind a little, for after that he went on very well again to the end of the chace. Our young sportsman could not fail to see that his horse was a good deal distressed; but he does not appear to have been at all aware that he was so beat, until on his way homewards some one remarked it, and called his attention to the state of the animal. He then stopped awhile at a house on the road, gave some meal and water, and proceeded; but he found his horse, instead of recovering, getting worse all the way. He managed, however, to reach Dublin a little after six o'clock, and immediately called upon me for my assistance. When I first saw the animal, his breathing and attitude indicated the greatest distress. The prominent symptom, however, was a convulsive motion, or jerking of the whole body, accompanied with a dull thumping noise, audible at several yards distance, and evidently proceeding from his inside: the beats appeared to be about 40 a minute. On placing my hand over the heart, the action of that organ could be felt *but very indistinctly—the beating* evidently came from behind the heart, and was most plainly to be felt in the direction of the diaphragm. Again placing my hand upon the abdominal muscles, the jerks appeared to come from before backwards. The impression on my mind, therefore, was, that this was a spasmodic affection of the diaphragm, brought on by violent distress of breathing. There was *no pulsation* to be felt at the submaxillary artery; and judging from that circumstance that any attempt to bleed at this time would be useless, I ordered stimulants to be given. We first administered ℥iij æther nit. in a bottle of warm water; but this producing no good effect, shortly after we gave ℥ij subcarbon. ammonia in a ball, allowing the patient at the same time plenty of white water to drink. About a quarter of an hour afterwards he broke out into a most profuse perspiration, which continued two hours or more. The breathing became more tranquil, but the formidable symptom, the convulsive motion of the diaphragm, still kept up without any abatement. After the sweating had ceased, however, I found the pulse more perceptible, and the action of the heart more distinct; and this I considered to be the proper time to bleed, a measure which was put in execution about eleven o'clock at night. The blood ran freely enough in a continued stream; but it looked darker than usual. On standing, it appeared flabby, and threw out a great quantity of serum. When about ten pounds had been extracted, I thought both the beating and breathing seemed to increase: I then left off, and shut my patient up for the night. In the morning, at

half past eight o'clock, the spasmodic affection of the diaphragm still continued, though much moderated. The horse's breathing was tranquil, and his pulse distinct at 50. I had him removed into a cooler box. About eleven o'clock the beating in the inside ceased altogether, having kept up full eighteen or nineteen hours; and with the help of a little tonic medicine the horse soon regained his usual appetite and spirits, and is now quite well.

Observations.—This horse was evidently in no condition to go through so great an exertion: he should have been pulled up when he fell with his rider, being then completely blown, and having had enough of it. To press him on after that to the end of the chace was an act, I cannot help saying, at once of cruelty and madness. It may be taken as a proof of a game horse, but it also shews the rider to be a very young sportsman: a little more experience may teach him to ride with more judgment than to beat his horse's wind; or, whenever he finds that to be the case, not to persevere. Many horses are totally spoiled by being thus pressed to exhaustion—their mettle and spirit so broken that they will always *shut up* even at a short distance, and are never good for any thing afterwards.

I quite agree with Nimrod and Brighton, that "all horses who die from exhaustion beyond the limits of vital power, die from suffocation," or, in other words, congestion of the lungs; at least this is most to be apprehended. In this state of the lungs we know that very little blood can be obtained by venesection: the blood will seldom flow in a continuous stream, and under these circumstances I think it is very proper to give stimulants and diaphoretics, with a view to rouse, to restore, to equalize the circulation—in a word, to create a re-action; and I know of nothing better for this purpose than the subcarbonate of ammonia, in doses of from ℥ij to ℥fs: whenever it is given, however, the animal should have plenty to drink. In the present instance we saw it produce copious perspiration, and consequently a beneficial effect. The pulse, which was before suppressed, became perceptible; and then I conceived it a proper time to bleed. Had I attempted this in the first instance, I think I should have failed to have drawn away any quantity, or to have done any good. But after the sweating had ceased, about eleven o'clock at night, the blood ran freely and continuous; and then, notwithstanding the distressing symptom, the convulsive or spasmodic motion of the diaphragm, still remained unsubdued, I considered the case as safe, and out of danger.

Dublin, April 9, 1831.

ON THE EXPANSION OF THE FOOT, AND ONE-SIDED NAILING.

To the Editors of "The Veterinarian."

Gentlemen,

A CORRESPONDENT, signing himself a "Constant Reader," in your last Number, remarking on the system of side-nailing, as recommended and employed for admitting the expansion of the foot, has occupied five pages with a long rigmarole in order to express a very simple opinion, which we find comprised at last in two lines, thus; p. 212, "both theory and practice assure me that the shoe *would* lack sufficient security on the hoof by such innovation." This is the amount of his argument; and it is the first and most obvious objection with which we have to contend. Such an arrogant conclusion would imply that the plan had scarcely been tried; but after all the pretended mathematical reasoning and arguments *à priori* are exhausted, we must appeal to facts for a defence, and it will then be found, that, in forty-nine cases out of fifty, the shoes remain on well, and wear out fairly to the last, when nailed in this manner; that is, if they are properly applied with the two clips recommended by Mr. Clark, as may be seen admirably represented in the supplementary plate 6, fig. 2 and 3, of his Treatise on the Expansion Shoe. This is a correct view of an unilateral shoe as proposed and practised by Mr. Clark, and which others have designated the side-nailed shoe. So far I fully coincide with Mr. James Turner; and although that gentleman has heretofore treated me with most unexpected asperity when I ventured to congratulate him on the correctness of his views, and his advocacy of the same doctrines as myself respecting the foot, viz. those of Mr. Bracy Clark, yet I think he will willingly agree in deprecating those who condemn this system without having known it in practice. If the "Constant Reader" had also perused other veterinary periodicals, he would have found in one which is now discontinued (*The Farrier and Naturalist for* 1829, p. 234), a letter from a practitioner in town, stating, that when residing in the country he had employed this plan for seven years, on above twenty horses, with the greatest success; and that he now shoes nearly all the horses that come to his forge in this manner. He gives the names of several gentlemen who had used the side-nailing system on principle for many years. I can bring forward a large number of cases in which it has succeeded, and doubt not that Mr. Turner has also sufficient evidence in its favour, as he has now used it on principle above two years. Your corre-

spondent would, therefore, have done better could he have produced proof against this mode of nailing as a system, instead of alarming us with a stale objection, which is always made by the transient observer, and so naturally arises in every unprepared mind. Without attempting to disturb his profound geometrical diagrams, it is enough to shew, that multitudes of facts, and the practice of so many gentlemen, oppose his reasoning. I can only compare his labours to those of the man who, on a hot summer's day, set about calculating that, from our immense distance of ninety millions of miles from the sun, it was impossible his rays could have any power to warm us: the inference he draws would appear on a par with this to men daily and successfully practising the unilateral shoe; of whom there are now in France and England, perhaps, many scores.

Being on the same side as Mr. Turner on this question, and consequently in a favourable situation for a parley, I beg leave to say a few words respecting our former differences on this subject, premising that, as we are advocating the same principle, we ought to avoid angry disputes. Mr. T. says, at p. 127, "Shortly after the publication, in THE VETERINARIAN, of my exposé of the chief error in shoeing, I was *assailed* in no very measured terms by the relatives of Mr. Bracy Clark, to whom I instantly replied." Now, although I am proud of being a near relative of this gentleman, and am the only one who wrote on this occasion, Mr. T. cannot mean that I assailed him; for I defy any man to find in my first "remarks" on his production other language than that of praise and congratulation. Having been from the hour I began practice advocating the necessity of the expansion of the foot, it was satisfactory to see this principle adopted by Mr. Turner, more particularly as it had heretofore been customary with the profession to blink at, stifle, and deny Mr. B. Clark's labours respecting it. What was my surprise to find a "reply" in the next Number, indignantly denying that he had acted upon principle, or derived his views from the works of Mr. Clark, a circumstance which I had not doubted, and could not doubt for a moment, knowing that he was acquainted with them. However, this, though a "reply," was no refutation; it merely disclaimed my remarks, but left untouched the principal statements. Neither did he ever notice Mr. Brightwen's letter, which appeared at the same time, to the effect of having used the side-nailing for seven years on twenty horses, by Mr. B. Clark's recommendation; a statement which sets the question of priority at rest. And Mr. Clark himself has since, in the concluding No. 6 of his work on the Foot, most candidly shewn the real origin of the system, at a date much earlier than this, by

a person not of the profession, who first timidly ventured the measure with his own horse, which a practitioner would hardly have done (see p. 56 of the above work). When this reply appeared I began to discover that Mr. Turner actually aimed at being thought the originator of this measure; and in a rejoinder which appeared immediately after I so completely negatived his claims in this respect, that no further attempt was then made to defend them; and every one who read that paper must have felt satisfied that Mr. Turner was merely adopting Mr. B. Clark's views without acknowledgment or allusion to him. I now repeat my words at that time: "While there are veterinary periodicals open to fair discussion, I will not allow any man to creep in by a side door and claim the merit of enlightening the world on this all-important principle, without making due acknowledgment to the original discoverer." But though my proofs were uncontradicted, there still remained a strong aversion to admit them. A year has since elapsed, during which another person, who became acquainted with the expansion of the foot by and through the means of Mr. Clark, has found out and published some detached passages in the work of Mr. Strickland Freeman, an amateur writer, which seem to shew that he had some *obscure* and *ill-understood* views respecting the "spring of the foot," as he terms it. I say they were ill understood, because his ideas were not at all settled or consistent, and he recommended the common shoe nailed on both sides, and did not see the evil of it; and it is evident they were obscure, since no man, whether writer or practitioner, was ever convinced of the expansion of the foot by reading his book, though it has been before them for thirty years. During that time, amidst all that has been advanced and written on the subject, no one has declared that he learnt any thing from Mr. Freeman's book, or was led to see the necessity of expansion shoeing in consequence. It was inconsistent and unintelligible, and conveyed no meaning to any body, until Mr. Bracy Clark explained the whole matter upon principle; and it is only with the last twelvemonth that any merit has been claimed for Mr. Freeman, or that his name has been brought forward. I asked Mr. Turner at that time, how or when he came into possession of the knowledge of the principle, except through Mr. Clark's works, and he could make, or did make no answer; but now, since Freeman's work has been quoted in the "*Lancet*," he chooses to say most readily, that not only he himself, but Mr. Clark also, has derived his information from this source, although twelve months ago he could not tell where he obtained it. Now the fact is, that those detached passages in Freeman, before spoken of, could not be observed or understood by any reader

unacquainted with the principle, and clearly were not consistently understood by himself.

Professor Coleman, whose work was published years after Freeman's, saw nothing about expansion principle in it, and has described nothing of the kind; and yet his was long considered a good, if not a complete, work; which it could not have been with an omission of such magnitude.

Mr. F. has long been gathered to his fathers, so that the antipathy which ever appears against a living discoverer could not have existed; and yet no one saw what they now pretend to see. But now, after Mr. Bracy Clark, through all manner of report, and in the face of the whole profession, has been the open and consistent advocate of this principle (at last admitted to be of the utmost importance), it is endeavoured to undervalue his labours, although every investigation will discover that his unremitted exertions alone have made the business of the foot and shoeing manifest to the world, and forced it, at length, upon the consideration of the profession.

When it is remembered that, not many years ago, Mr. Clark's doctrine respecting the expansion of the foot was accounted absurd, and had no supporters, the present discussion must afford him most lively satisfaction; and there is no stronger proof in his favour, than that others are trying to come in for a share of the merit attached to his labours.

For the future I shall abstain, to the utmost, from commenting on any of Mr. Turner's writings; but I am pleased to observe, by his remarks on paring feet, at the end of the paper, that his practice is becoming so much in accordance with the recommendations Mr. C. has always laid down relating to these parts. As he is decidedly the first college veterinarian who has espoused, in spite of his education, the true expansion principle, I am glad of such an accession to our cause, and feel every way inclined, when truth permits, to agree with him; and, as I said before, for the expansion shoe and the side nailing, let experience decide between them, but our principles must triumph.

Trusting to your editorial candour, and to the pledge which you have given to the public, to find a place for these observations,

I am, Gentlemen,
Your very, &c.
CHARLES CLARK.

Veterinary Infirmary,
Stamford Street, April 10.

THE EARLY HISTORY AND ORIGINAL CONSTITUTION OF THE VETERINARY COLLEGE.

[Continued from p. 207.]

THE SCHOOL AND PUPILS.

I. ANY person desirous of becoming a pupil on the foundation of the college, must be able to read and to write legibly. Preference shall be given to those youths who shall have received the elements of a good education, and more especially to those who have some knowledge of surgery and pharmacy.

II. Candidates qualified according to the preceding article, and not being under the age of fifteen years, nor more than twenty-two, shall apply to the secretary, to whom they shall deliver a paper, containing their names, age, and place of abode; and the secretary shall refer the same to the next meeting of the council or superintending committee. The limitation of the age is not extended to practitioners in medicine or surgery, or to persons having made some progress in those studies.

III. The pupils on the foundation of the college, shall be appointed by the council; and care shall be taken, as much as possible, to admit them from different counties, for the purpose of disseminating the science.

IV. When a pupil is admitted on the foundation of the college, he shall engage to remain so long in the college as an assistant, as shall be required by the council, not exceeding two years, and shall give security to the college for that purpose; and for his proper conduct during that time: but he shall be at liberty to retire, on paying to the college so much as he would have done not being on the foundation.

V. Persons qualified according to rules, No. I and II will be admitted into the college on paying twenty guineas, which will constitute them perpetual pupils.

VI. Pupils on the foundation, who appear to have a taste for drawing, shall have a master to instruct them. The other pupils may also attend such master upon paying for such instruction.

OF THE DISTRIBUTION OF THE STUDIES.

Although the particular distribution of the studies shall be referred to the judgment of the professor, yet the general order of them shall be nearly as follows:—

The knowledge of the animal economy being indispensable to those who would make any progress in the art of healing, the pupils should be first instructed in Zootomy.

First Course.—The study of zootomy shall begin on the 1st

of November, and end on the 30th of April of the following year.

Second Course.—The study of the exterior knowledge of the horse shall begin on the 1st of May, and end on the 30th of October. In this course the pupils shall be taught the good and bad conformation of the animal; as also the external diseases which affect his body and limbs.

Third Course.—The course of operations shall begin on the 1st of November, and end the 30th of January of the following year. From the 1st of February to the 30th of April, the pupils shall put in practice those surgical operations which they shall have been taught in the preceding course of lectures. This shall employ them the mornings only: in the evening they shall be instructed in the Materia Medica.

Fourth Course.—The pupils shall attend a course of pharmacy, to obtain a knowledge of the different preparations; they shall divide their mornings between the dispensary and laboratory.

Fifth Course.—A knowledge of the common plants and herbs being necessary to the veterinary physician, the pupils shall attend a course of botany relative to veterinary medicine. This course shall take place in the afternoon, and shall, as well as the preceding, continue during the summer.

Sixth Course.—It being necessary that the shoeing of horses should be perfectly understood, the pupils shall attend the forge in the morning. In the evening, lectures shall be given in pathology, to prepare them for the practice of the infirmary.

Seventh Course.—The pupils, after having gone through every branch of the veterinary art, shall be obliged to attend the infirmary every day, when the professor shall employ them according to their respective abilities. He shall confide to their care one, two, three, or more animals, whose symptoms they shall be obliged accurately to observe, and note down in a journal, and report the same daily to the professor. But the treatment of the patients, shall be always directed by the professor, and strictly adhered to by the pupil.

Eighth Course.—The design of the institution would fail in a great degree if the pupils were not to be instructed in the nature of epizootic diseases, to which animals are liable. The veterinary physician having before him the table of symptoms which characterise diseases, will be enabled to discern the nature of the maladies which he has to encounter, and consequently to make a better choice of remedies proper to remove them. In this course, therefore, the pupils will be taught the method of distinguishing, preventing, and curing diseases, as they occur in particular animals. The pupils, having completed

their studies, shall undergo a public examination in the theory and practice of every branch of the veterinary art; and those who shall be considered as perfectly instructed therein, shall receive a certificate, signed by the professor, and confirmed by the council.

It appears from the above division of the studies, that a term of three years is sufficient for a complete education, provided the pupils are capable, assiduous, and well inclined.

OF THE INFIRMARY.

An infirmary shall be open for the reception of diseased animals belonging to the members of the college.

No horses or any animals shall, under any pretence whatever, be received into the college, but those actually the property of subscribers; and to prevent imposition by servants, no horse or other animals will be received that is not accompanied with a cheque signed by the owner. Blank cheques may always be had on application at the college.

When horses, &c. are taken from the college, the expenses either of keeping or shoeing shall be paid by the groom or other person taking the animal from thence, before it shall be delivered to him.

The price of shoeing shall be 1*s.* per shoe, and the price of keep for horses taken into the infirmary shall be 2*s.* per day.

Each subscriber shall have the privilege of sending one horse at a time to the infirmary, and when the stalls are occupied, the horses sent shall be taken in by rotation as the stalls become vacant. A book shall be kept in which shall be inserted the applications for the admisson of horses.

Eight stalls shall be kept vacant for the purpose of admitting horses in very acute or accidental cases, out of the plan of rotation.

Monday, Wednesday, and Friday, shall be the only days of admission into the infirmary (except in cases of accident), and Tuesday, Thursday, and Saturday, the only days of delivery from thence.

When the owner of a horse or other animal receives notice of his horse being ready to be discharged from the infirmary, he shall send for him on the day mentioned in the notice; and shall also send by the groom or other person the amount of the keep (which will be specified in the notice), with the notice itself, to prevent any imposition on the college. On neglecting to send for the horse or other animal on receiving such notice, the price of keep will be advanced double from that time; and on continuance of such neglect, the committee shall either send the horse

to a livery stable at the expense and risk of the owner, or sell it to pay the charges, as they may think proper; giving the proprietor a week's previous notice of such determination.

No person whatever, the members of the council excepted, shall be permitted to go into the infirmary without the permission of the professor, nor at any time but between the hours of eleven and two o'clock.

If any animal die in the infirmary, the body shall belong to the college, and the professor shall open it before the pupils for their particular instruction.

RULES CONCERNING THE GROOMS AND HELPERS.

No grooms, helpers, &c. shall be retained in the service of the college but such as are sober and diligent, and approved of by the superintending committee.

As the food shall be ordered every day by the professor according to state of the patient, the grooms shall not increase or lessen the portions ordered. This article must be observed with the most rigid exactness.

The infirmary shall be kept in the greatest degree of cleanliness.

The most gentle treatment of the animals is strictly enjoined. The groom or assistant who shall be convicted of having abused a horse, &c. shall be instantly discharged.

An assistant shall be appointed, who will be charged with the care of the dispensary and laboratory, under the direction of the professor.

A steward shall be appointed, who will be charged with the care of the forage, &c. belonging to the college.

A smith shall be appointed, who will be charged with the care of the forge, subject to the professor, by whom he shall be appointed or dismissed, with the approbation of the committee.

Other servants shall be hereafter appointed, as occasion may require.

ON ONE-SIDED NAILING.

By Mr. W. C. Spooner, *Blandford.*

To the Editors of "The Veterinarian."

Gentlemen,

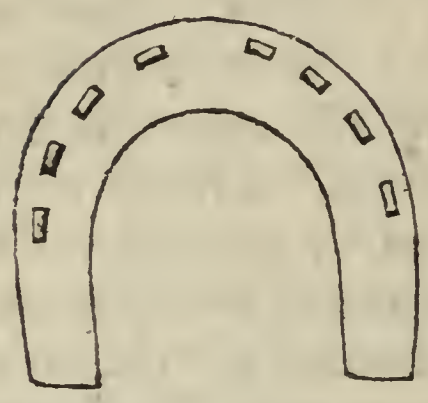
On perusing the last Number of your periodical I read with pleasure a paper entitled "Nailing Horseshoes on." I was gratified to find that the subject had at length awakened attention, being convinced that that attention would only tend to its bene-

fit; and though the writer has preserved his incognito, yet I do not think, in opposing Mr. Turner's system, he has been actuated by any invidious or improper motives. The observations with which he prefaces his paper are perfectly just and reasonable, and from the general style of his dissertation I should imagine that he is no unpractised hand. However, as I do not by any means agree with his positions, or coincide with his arguments thereon, I am induced to venture a few remarks; my desire being the same as a "Constant Reader's," viz. to elicit knowledge, although I have in some respects the disadvantage, being deprived of the pleasure of knowing who my antagonist may prove to be, if he should hereafter condescend to raise his visor.

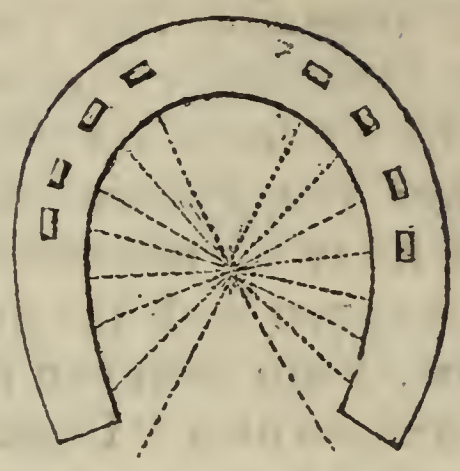
The writer, after a few introductory remarks, proceeds to adjust the scales wherein to try "the *risks* and counterbalancing *profits*" of Mr. Turner's system, and he says, "we must advance step by step, and with caution;" but, lo and behold, no sooner says he this, than he throws in all the weights against the side-nailing system; and the natural consequence is, Mr. Turner's scale kicks the beam. He says, "first, let us inquire what we gain by nailing the shoe upon *both* sides;" but he does not say, secondly, what we lose by so nailing; or, thirdly, what we gain by Mr. Turner's system. If I proceed to fill up what is here omitted, with the addition of a few remarks, I trust I shall not be deemed intrusive, or engaged in unprofitable discussion.

On reading the paper, I was first of all struck with the diagrams, one of which is intended to represent the *common* shoe and mode of nailing. Now, for my own part, I could not discover any resemblance this diagram bears to the common places of the nails: if shoes were really made according to this shape, I do not think we should ever find feet to fit them; and if the nails were really placed in the situations here specified, we should very soon have an ample supply of lame horses. The fact appears to be, the writer has made the diagram to bear out his theory, but I do not imagine that he would get smiths to make shoes that would bear out *his* diagrams. To illustrate my meaning, and to save unnecessary words, I have added the outlines of two shoes [see *figs.* in p. 258]. No. 1 is the common English shoe as engraven in *The Farrier and Naturalist*, vol. i, p. 227. No. 2 is a representation of a shoe procured at the college about three years ago, and is, I believe, generally employed in that establishment at the present time. In these figures the situation of the *nails* is exactly preserved; and by drawing the lines according to the method of "A Constant Reader," we cannot discover *very much* of the all-important "reciprocal support" on which the security of the shoe

No. 1.



No. 2.



depends. The writer says that it is owing to this "reciprocal support" that the nails near the heels contribute most to the shoes' security. Now I would explain the circumstance very differently: I consider when a horse throws a shoe, the displacement goes on on the principle of the lever, of which the toe is the fulcrum; the heels the power that displaces (and which is greater or less according to the weight of the heels, and the velocity with which the foot is carried through the air), and the nails, of course, the objects to be raised. The nails nearest the heels must be the ones first moved, and in proportion to the proximity of these nails to the heels is the difficulty of throwing the shoe: but each half of the shoe must act as a separate lever; and I should imagine (supposing that throwing the shoe were desirable) that both levers should act alike, and with reciprocity; which cannot be the case with side-nailing, as the lever on the inside would act with double the advantage of that on the outside. To exemplify the subject, let us suppose two men moving a heavy weight by means of levers (of that class where the object to be moved is between the power and the fulcrum); it would be necessary for these levers to be of the same length and to be applied in a similar manner; for if one of them were to use a shorter stick, or to place it to disadvantage (by putting it too much under the object to be moved), or to use much less exertion, he would, in a great measure, render nugatory the other man's labour. Thus it is with Mr. Turner's shoe; the security is greater on the outside and less on the inside than the common shoe: but this very inequality tends rather to its general safety than otherwise.

But to proceed: has this reciprocal support really any thing to do with the security of the shoe? If the shoe were a *plate* of iron covering the whole of the bottom of the foot, then it certainly would; but as it is simply a *ring* going round its lower circumference, it is reasoning from analogy (with a vengeance) to suppose, that it can possibly be governed or guided by any imaginary lines drawn from one nail hole to another. The argu-

ments of "A Constant Reader" may be just, when considered as respects the foot alone; but when he compares together things, between which there is no analogy, no resemblance in the shape, or similarity in the functions, he is reckoning altogether without his host, and involving himself in errors, from which no geometrical talent can extricate him. The sole no doubt, besides its other functions, serves as a strong bond of union, strengthening and connecting the inferior part of the crust, and preventing it from expanding or spreading beyond a certain point, but in the common shoe we discover nothing at all corresponding to this; there is no danger of the shoe enlarging, and therefore nothing required to prevent it: then, again, this function of the *sole* is called into action while the foot is on the ground, with a great portion of the weight of the body resting upon it, but the shoe is in the greatest danger of being thrown when the foot is off the ground, passing rapidly through the air; thus, "as it is with the foot so it is" *not* "with the shoe."

I own, that in looking at Mr. Turner's system there is an apparent insecurity, but at the same time I am convinced, that, on a deeper examination, this apparent insecurity will disappear. Now let us compare Mr. T.'s shoe with the outline of the college shoe, and I am not aware that there is any complaint against its security, and I pledge myself that the figure I have drawn is a correct resemblance. Mr. Turner dispenses with two or three nails on the *inside*, and by so doing is enabled to put one or two additional ones on the *outside*, and the rest towards the toe. What is lost on the *inside* is very nearly made up on the *outside*, and there is but very little difference between the quantity of iron unpierced with nails in one shoe and in the other. Then likewise, it must be considered, that the horn is much thicker on the outer than on the inner quarter, is better adapted to receive the nails, and forms a more effectual holdfast for the shoe.

I believe it is generally acknowledged that the foot in its natural state expands at every step, the shoe therefore must resist this expansion;—thus there are two forces opposed to each other. Now the *resistance* of the nails must either overcome the *expansion* of the foot, or the weight of the animal and the expansive powers of the foot must overcome the resistance of the nails; if the latter takes place, the nails must be bent out of their situation, and weakened accordingly. This of course cannot take place with side-nailing; and the possession of this superiority is fully equivalent to any advantage the old system may otherwise possess. The security of side-nailing is far greater than I at first expected, and I attribute it to the circumstance

just mentioned; but, after all, one *fact* is worth a dozen *theories*. I have tried the side-nailing system, and have found it completely answer, and I shall therefore continue to employ it; and in addition thereto, I would mention that I was talking to a brother veterinarian on the subject a few months back, and he said that he much approved the plan; and though he did not keep a forge, he had his own horses shod after the method, and, if he had a *hundred horses*, would do the same.

I have endeavoured to make myself as intelligible as possible, and would feel obliged by your inserting this paper in the next number of THE VETERINARIAN.

W. C. SPOONER.

Blandford, April 18th, 1831.

PERITONITIS; INFLAMMATION OF THE NECK OF THE BLADDER, AND OBSERVATIONS ON TAPPING THE BLADDER.

ABOUT eight o'clock at night on the 31st of January, 1831, I was sent for to attend a horse pony of Mr. Williams, the chandler, of this town, that had lain down in the morning, and could not be made to rise again. He is blind and broken-winded.

Symptoms.—Has lost the use of his hind legs. He can rise upon his fore legs on trying to get up, but is quite unable to raise his hinder parts in the least. On pricking his hind legs with a pin, he does not evince any feeling. Bowels constipated. Turns his head occasionally towards his flanks, as if in pain, and groans. Bladder much distended. Cannot detect any injury to the spine.

Treatment.—Bleed to three quarts, which was buffed. Give aloes cape ʒiv in a ball: apply a mustard blister to loins. On raking him I pressed about a quart of urine out of his bladder, and when doing so he strained violently, purposely, no doubt, to force it out.

1st Feb. 9 o'clock A. M.—No better. Raked him again, and pressed more urine out of his bladder, which relieved him, as he seemed pretty easy after for awhile. Rubbed more mustard over his loins.

6 P. M.—No better. Raked and pressed out urine as before. He strained much on pressing the bladder. Gave him ℔ss. ol. lini. Did not bleed again, on account of his being poor.

2d Feb. 9 A. M.—No better. Raked, and pressed out about a quart more urine. Hind legs more under his controul, and warmer. Bowels not opened. Pulse quicker and small. ℞

aloes cape ʒiij opii gr. LXXX dissolved in half a pint of warm water; one half to be given now, and the rest about twelve o'clock. Died some time in the afternoon.

Examination.—The bowels quite sound, and fæces perfectly soft, with the exception of some in the rectum. The peritoneum lining the abdominal muscles was in a high state of inflammation, the blood in the vessels being nearly black. There was no effusion in the abdomen. The bladder was completely filled with water, and about its neck highly inflamed, and the vessels ramifying in the bladder were much distended and gorged with blood. The lungs had the usual air-bladders upon them as in broken wind, and they were principally seated round the edges of them, and especially upon the small branch on the left side that occupies the space on the side of the heart. The heart was very large. The lungs contained a great many miliary tubercles; some were as large as peas, white, and similar to them, and quite hard and round.

Remarks.—It is very clear, I think, that this horse died of inflammation, or, perhaps, I may rather say, spasm of the neck of the bladder. I am also well aware that the bladder ought to have been tapped, but, not having a trochar, I was not able to do so, but have since ordered one. In what manner this operation ought to be performed there are divers opinions. Mr. Blaine recommends the bladder to be punctured through the rectum, and Mr. Percivall, in front of the pubes; the latter doubting whether the urine would be expelled through the rectum, but acknowledging at the same time that he never operated through the rectum. Now, for my own part, I do not doubt but what the bladder may be in a great measure emptied through the *high* operation, for the bladder would scarcely ever be punctured but when it was fully distended; and I think that, so soon as the trochar has penetrated the bladder, the urine will begin to flow into the rectum through the elasticity and contractiblity of the bladder, the usual method the horse has by contracting the abdominal muscles, thereby forcing the intestines against the bladder, as clearly shewn in this case, and which may be very much assisted by pressing the bladder with one's hand; and I think that, when part of the urine is evacuated, the bladder will have regained its capability of contracting, and that sufficient will be got rid of so as for the means employed to remove the exciting cause. Even if all these probable means fail, it would be no difficult affair to bolster the horse sufficiently on his side, or even on his back, which would completely set aside the objection of the urine not being able to escape after the puncturing.

In puncturing in front of the pubes there is very great risk of passing the trochar through the intestines, which I am pretty certain would have been so in the foregoing case, as they pressed up under the bladder to its neck. It naturally may be supposed, when the bladder is so much distended, as in this case, that it would have pressed the intestines away; but such was not the case, as I examined it very particularly. Besides, I think that, if the bladder could be tapped in front of the pubis, there would be great danger in the urine causing considerable irritation at the opening from its pendant situation; and which is well known to be the case, even when the perineum has been opened, and which part is not near so liable to be so *repeatedly* irritated with urine as that made through the front of the pubes, which must be in constant contact with it.

Again, Mr. Percivall says, that if we puncture the bladder through the recti muscles, the trochar will pass *behind* the peritoneal covering, leaving the abdominal cavity uninjured; but from several examinations I conceive that it is impossible to avoid passing the trochar through the peritoneum, as I think it will be found that the peritoneum is reflected from the abdominal muscles into the pelvic cavity, and is nearly attached to the two ossa innominata, so that it would be impossible to pass the trochar without injuring the peritoneum. In operating through the rectum these objections, I think, cannot arise, as I imagine there would be no danger of the opening of the rectum and bladder speedily closing. I do not see any great objection in passing a flexible piece of whalebone up the urethra as far as the perineum, and so cut down upon it and pass a female catheter direct into the bladder. I should even prefer this to puncturing in front of the pubes, although I am aware that there is great difficulty in getting the opening in the perineum to grow up: there certainly is a great advantage in puncturing the perineum; for it is a part where we can easily get at, and can at any time introduce the catheter, or even leave it in, just as we like. Upon the whole, therefore, if it should be found that the bladder can be punctured above the pubes without injuring the intestines and peritoneum, and that the urine does not irritate the aperture, then I should say, by all means operate there; but if, after repeated examinations and operations, it should be found not to answer our expectations, then, I should say, operate through the rectum; and which, in my opinion, is to be preferred, until the above objections are found not to be well founded.

These remarks, your readers must be aware, are not founded on experience, but from examinations and plausible deductions, and I am not aware of any English author having rationally

decided upon the *superiority* of the operation; it is a point I am sure your readers, as well as myself, would wish to be set at rest, as it concerns us all: I, therefore, wish those of greater experience and skill than myself to favour the public with their opinions on it, so that we may be ready, at a minute's notice, to combat so formidable and dangerous a malady, and where indecision and unskilfulness will be to greatly risk the life of our patients.

W. A. CARTWRIGHT.

Whitchurch, Salop, 17th April 1831.

SHY HORSES.

IN the first volume of THE VETERINARIAN, page 92, are some observations on this subject; to which it is my present intention to append some others by way of continuation, on a point whereunto the former do not extend: viz. on the "cure" or "remedy" for, or most efficient mode of, managing such troublesome cases.

The common reward a horse gets for shying, is a good thrashing; which, however much it may gratify his master, certainly too often turns out a practice that, so far from "curing" or "remedying" the shying disorder, tends to augment it, and adds to it the disagreeable accompaniment of running away, after having started, with yet still more affright than before. And surely it seems quite reasonable, that an animal, already in a state of fear or affright, should have that impression rather augmented than dissipated by the infliction of corporeal punishment, at the moment he is under such influence.

The ordinary practice on horseback of one of our jockey riders, is, as soon as he perceives the object on the road at which he knows his nag to shy, to take up his reins (so as to have his horse in hand); to adjust himself upon the saddle, holding thereon additionally tight with his knees; and, lastly, to have his stick ready to do the requisite execution, which is considered to be most effectual when applied *over* or rather *upon* the head or shoulders. Now, as I stated before, not only does this summary infliction do much harm, aggravating instead of mitigating the original disorder, but the very preparation of the rider that precedes the start is itself a source of evil. For, by this mode of proceeding, the unfortunate animal is put into such a preliminary state of alarm as not only augments his dread of the object at which he ordinarily starts, but also puts him into that state of terror afterwards at the expected basting "about the head and shoulders," that he commences with capering, and

then starts, is frightened, and runs away, and becomes for the time so frantic as to be altogether unmanageable. In fact, it must be evident to every sensible and reflecting horseman, that such coercion and chastisement is not only inhuman, but has the very contrary effect to what is required.

It is now pretty generally admitted by all riding-masters and colt-breakers, that a great deal more is to be effected by lenient than by harsh treatment: *rewards* are found to operate more beneficially than *punishments;* and therefore the most scientific and practised riding-masters adopt methods based upon the former. The writer of this remembers a very remarkable instance of the efficacy of this plan, or rather of its vast and decided superiority over violence of the worst description. A vicious thorough-bred horse had baffled the efforts of every one into whose hands he had been put to be rendered tractable: at length a foreigner of considerable repute among equestrians of the "school," took him to make trial of; and in the course of a year or so had rendered him so quiet, that not only could any person ride him with the utmost safety; but, at the same time, so docile and tractable, that he could be induced, by certain signs, to lie down and permit his rider to mount before he arose again.

The same forbearance and humanity have been practised with the same beneficial results upon shy horses. With all such persons as are best able to give counsel in cases of shyness, the language is now-a-days, "let the horse alone"—"take no notice of his shyness"—"work him well and accustom him to the objects he dislikes, and in time he will of himself leave off his tricks of shying."

This is good advice; but, let it not be misinterpreted. Let it not be understood to mean that the animal is to receive any *encouragement to shy;* for by no other expression can I characterise that erroneous and foolish practice of patting the horse, or "making much of him," either just before or during the time he evinces shyness. The former is bad, because it *draws the attention* of the animal to the object he dreads: the latter is worse, because it fills him with the impression either that the object itself is really terrific, or that he has acted right in shying at it, and ought to do so again.

Whether you be approaching the frightful object, or the horse be actually shying, "let him alone"—"take no notice whatever of him"—neither let him perceive that you are aware you are advancing towards any thing he dislikes; nor do more with him, while in the act of shying, than is necessary for due restraint with a steady hand upon the rein. Depend upon it, battling on your part will only serve to augment affright and arouse resist-

ance on his; and that the most judicious course you can pursue is, to persevere in mild forbearant usage. At least, such are the opinions founded upon my experience, and upon such information as I have, from time to time, been enabled to collect in conversation. Should any one have any useful hints to add to these observations, they will prove most acceptable to the writer. Ω.

MR. YOUATT'S VETERINARY LECTURES.

THE FRONTAL BONES OF CATTLE AND SHEEP.

The horn is the principal weapon of offence belonging to the ox. To enable him to use it effectually, it is necessary that it should be firmly based on the head. It is to give sufficient and secure attachment to the horn that the frontal bones of the ox have that great development of surface and substance which we see in the specimens before us.

The frontal bones in this animal reach from the nasals, to what we have called the occipital ridge or crest in the horse; but that crest is here formed by the union of the frontal and parietal bones, so that the parietals appear only at this ridge on the upper and fore part of the head, and deeply buried in the temporal fossæ, and the occipital bone is depressed far below the ridge, and has comparatively little volume. The whole of the broad expanse of bone in this animal, from the nasal bones to the summit of the head, and farther and below this on each side, is occupied by the frontal bones.

These immense bones, were they solid, would be most inconveniently and fatiguingly heavy to the animal, and therefore we find not only a separation of the plates, constituting the frontal sinuses which I have described in the horse, but extending from the place of the commencement of the frontal sinus in the horse to the summit of the head, and even below that through the parietal and the occipital bones to the foramen magnum. The horn is likewise cancellated, and the sinuses may be said to extend almost to the tip of it. There is a strong and perfect septum, as in the horse, between the sinuses on either side, and extending from the commencement of the sinus to the foramen magnum. The other septa are imperfect, as in the horse, so that there is one continuous cavity or sinus, on either side from the inner angle of the eye to the great foramen, and the summit of the horn. All these connected cells are lined by a continuation of the schneiderian membrane, and their extent accounts for the more serious character which nasal gleet, and other affections of this

membrane, assumes in cattle; and for the frequent accumulations of pus about the root of the horn, and particularly at the posterior part of it.

The supra-orbital foramen must necessarily, from what I have shewn you, open into the frontal sinus, and the nerve and artery which supply the forehead must pass through a portion of that cavity; and as they have a greater surface to supply, they are considerably larger than in the horse. In fact, there are usually two foramina on each side; and as the increased size of the artery and nerve would render them more prominent, they are lodged in a depression or sulcus, extending both above and below, until they divide into smaller branches less liable to injury.

In the polled variety of oxen, the frontal bones are as extensive as in the horned. They reach from the nasal bones to the summit of the head; but the diploe is not so great, although the frontal sinuses are considerably larger than in the horse. This, however, varies much in the different breeds of polled cattle.

I shall not enter into a full description of these bones as in the horse, but content myself with the points of difference.

The orbitar process, as you will see in these crania, is not so developed as in the horse. It presents a much narrower and sharper surface externally, and its breadth is from without, inward. It is small and weak compared with that of the horse, because the upper and outer portion of the orbit of the eye is defended from injury by its very situation, while it is the part most exposed to danger in the horse. When we arrive at the temporal fossa, which, in the ox, is low on the side of the head, instead of a portion of it, or the commencement of it being, as it were, on the forehead, the orbitar process takes a direction downward and forward, instead of downward and backward, and abuts upon, not the temporal bone as in the horse, but a bifurcation of the malar bone, and does not enter at all into the composition of the zygomatic arch. That arch, depressed in its situation in the ox,—not requiring much curvature, because the food of this animal is gathered more at leisure, and the process of rumination is slowly and sleepingly performed, and there is not wanted so much bulk of temporal muscle, nor such extensive motion of the coronoid process of the lower jaw—that arch, I say, needs not the frontal bone to give it curvature or strength. The orbitar process abuts upon, and is united to the upper bifurcation of the malar bone, by a suture both squamous and serrated. Its union with the parietals—distinct parietals in the ox—is found at the summit or ridge of the head, and deep within the temporal fossæ.

The greatest variation, however, between the frontals of the horse and of most breeds of oxen consists in their prolongation,

in the form of the internal or bony part of the horn. In the fœtus of three months, there is no bony enlargement at the situation of the future horn; but it soon afterwards begins to be visible, and at the seventh month there is a distinct tubercle, raising the skin. This continues to grow, forcing its way through the skin, and carrying with it the cuticle, which by degrees hardens over it.

The horn, as it is commonly called, is composed of an elongation or process of the external plate of the frontal, covered by a cartilaginous investment or defence. This bony process, in its prolongation from the frontal, contains likewise a continuation of the cells, and it is vascular to a degree observed in no other bone. Its surface is furrowed and perforated by innumerable vessels, which are designed not only for the nourishment of the bone itself, but of the horn by which it is covered. It is on account of this great vascularity of the bone, that, when the horn is broken, there is often so much hæmorrhage, and which the surgeon finds it very difficult to arrest. A veterinary friend who was compelled to amputate the horn of an ox, on account of an enormous bony excrescence that was forming on it, told me that the blood poured out in a stream as big as his finger, and which he could only stop by the long application of a large budding-iron.

The continuation of the frontal sinuses through the horn will also enable us to account for the violent inflammation which often follows a fractured horn. The injury of the membrane would be a sufficient cause of inflammation; but air is admitted, not indeed into a cavity from which it had before been altogether excluded—it is not a serous membrane,—but where it had not free access, and the unaccustomed stimulus produces great irritation. Farriers and cowleeches are properly anxious to close the opening. They place over it plaister upon plaister of tar or pitch, not merely to restrain the hæmorrhage, but to exclude the air.

The bone of the horn once broken off is never reproduced—at least not perfectly so. Nature often attempts to restore a lost portion of the frame, but the process is irregular, and the product misshaped—an irregular mass of bone is occasionally formed on the fractured part of the horn. I have one that weighed, when first separated, no less than thirty-seven pounds. The horn, however, of its natural form, and with its natural investment, is rarely or never produced.

The covering of the bone differs little in construction from the horn of the foot of the horse. It is composed principally of coagulated albumen with a small portion of gelatine, and about a half per cent of phosphate of lime. The albumen is somewhat greater in quantity in the horn of the ox, and hence its superior hardness. It is divided by maceration, and even mechani-

cally into numerous laminæ or plates, but no nerves or blood-vessels have, after the most careful injection, been traced into it, although they doubtless exist there.

Towards the base of the horn the covering is very thin. It seems to be a continuation of the cuticle. After the most careful examination, it does not appear to be separable from the cuticle, but the process of maceration will distinctly separate them.

It has been disputed whence or in what way the horn is produced. Some have contended that, as the crust of the horse's hoof is principally secreted from the coronary ligament, so the horny covering of the bullock is secreted by, or is a prolongation of, the cuticle at the base. That a portion of it is derived from the integument at the base cannot be doubted. It was the original covering of the bone; and the rings, which increase yearly in number and recede from the root of the horn, clearly point out this origin; but as the horn recedes from the base, it thickens very much, and this thickening, and indeed the greater portion of the horny covering, is secreted from the vascular bone underneath.

The thinness of the horn at the base enables us to account for the common practice of farriers and cowleeches, of placing the hand on the root of the horn in order to judge of the degree of fever; and they do ascertain it with considerable correctness, for the skin is thin, and the bone beneath is highly vascular. It is covered by a mesh-work of vessels, and the temperature of the frame, being one indication of the degree of fever, is at once evident: this bone is likewise lined by a continuation of the schneiderian membrane, which would sympathise with any intense affection of the thoracic viscera.

Brutal fellows are too apt to strike the ox over the root of the horn. The thin covering over a vascular and sensible part is an inadequate defence, and the animal suffers great pain from the blow. It is said that some fool-hardy persons, armed with a stout stick, will not shrink from the attack of the most ferocious bull. A few smart blows on the root of the horn will inflict so much pain, that the animal will retreat from the combat.

On account of the thinness of the horn at this part, and the imperfect formation of the supporting bone at an early age, some brutal fellows have undertaken to give any desired form and direction to the horn. The process is painful enough, for the horn is softened by the application of hot irons about its root; and it is said that many of the beautifully-turned horns, which are so much admired in various breeds, had their shape and curve artificially given to them.

Influenced by this thinness of the covering of the bone of the horn at its base, the French recommend fomentations and poultices around the root of the horn for inflammatory affections of the

head. This does not appear to be a very scientific mode of proceeding, for the thin part runs but a little way; and then there is considerable thickness of bone before we arrive at the membrane of the sinuses within. A poultice or a fomentation could hardly have much effect over so small a space, and through the horn and bone.

The shape of the horn is one and not the least distinguishing characteristic of the different breeds of cattle. Thus we have the coarse hair, the large hoof, the depth of fore quarter, and the long spreading horn of the Lancashire. The Cheshire and the Gloucestershire are but varieties and no improvements of the Lancashire. The Leicestershire, with its thinner skin, and rounder form, and smaller bone, betrays the same origin; the little Kyloes seem to be a branch of the same race. Of the short horns there are numerous and valuable families in the Yorkshire, the Durham, the Northumberland, and the Holderness; the diminutive Scottish runt, and the little Alderney, with its crumpled horn: while the Devonshire with its red colour, and thin neck, and clean head, and wide hips, but narrow chine, and too flat ribs; and the somewhat larger Sussex, and the still bulkier Herefordshire, have horns of an intermediate length. Then there are the polled cattle of many a varying form and character, from the Suffolk dun, with its profusion of milk, to the stented Galloway, the parent perhaps of the breed, and, although little, good as a milker and for the butcher too.

The horns vary also with the sex—the short, straight, strong horn of the bull; the longer, weaker, and branching horn of the ox, and that varying so much with the period of castration; and the more delicate and variously curved horn of the cow, are objects of every day's observation: but the consideration of this belongs more properly to the generative system.

The horn is to a certain degree indicative of the age. At three years old the tip of the horn drops off, and is not afterwards renewed; and about the same time, a ridge or ring of thicker horn, seeming to mark the different layers of the horn, is seen a little above the root; and a new one appears on each succeeding year: so that if you count these ridges or rings, and add two to them, you will have the age of the beast. These rings, however, are not to be traced in every beast—they sometimes present a confused character, and seem to run into one another; and it is very easy for the dishonest chapman to rasp off one or two, and give a false appearance of youth. We find in the teeth more satisfactory marks of the age, and where no roguery can lead us astray.

On account of the vast extent of cavity from the communication between all the partitions of the sinus, the ox occasionally suffers much from the larva of a species of fly which creeps up the

nose, and lodges in the sinus. He suffers more than the sheep from this cause, but not so frequently, for the frontal sinuses of the ox seem to be more the accidental than natural and regular habitation of these insects.

He is, however, sometimes seen in great pain, holding his head low, and carrying it on one side. This is not from the irritation of these insects, but from the pus which has been effused within the sinuses, collecting about the root of the horn. If the horn is cut off, a very great quantity of matter often escapes, or, at all events, the inflammation is much relieved by the copious bleeding that inevitably follows.

In the sheep the frontal bones are less developed. They are more convex both in the horned and polled variety ; and in both the parietal bone, as the specimens will shew you, is permitted to occupy its usual situation on the roof of the cranium, and the ridge is formed by the occipital bone. The ridge or crest is, however, considerably depressed in both. It is so far depressed as to be out of all danger when the animals amuse themselves by butting each other. A very small portion only of bone, actually covering the brain, can receive the concussion of the rude encounter. If these bones, and the all important organ they cover, are not protected, as in the horse, by the yielding resistance of the temporal muscle, they are more effectually preserved by their being depressed out of the way of danger.

The horn, as in the ox, springs from the frontal bone, but much nearer to, and a little above the orbit of the eye. The frontal sinus in the polled sheep is more confined than in the horse. There is a singular and irregular depression on either side where the horn should have sprung, which limits the extent of the sinus backward ; but in the horned sheep the sinus reaches to the horn, and through it. In neither is there any separation of the plates of the bone at the posterior part of the frontal in the young animal ; but when the horn is nearly grown, the sinus penetrates through the frontal, but never reaches the parietal. This is a singular difference in the construction of these bones in two horned animals, the ox and the sheep.

The foramen supra-orbitarium passes through the frontal sinus in both the polled and the horned variety ; and, as in the ox, there is a comparatively greater surface for the vessels to supply, there are usually two foramina on either side, and the vessels, at their exit from the bone, are defended by a sulcus or trench ; and especially as these animals, like the ox, make too free use of their heads in combat, and the vessels might be injured.

In order to afford space for the attachment or origin of the horn, the orbitar portion of the frontal bones projects both forward and

laterally ; which gives the peculiar breadth of forehead and prominence of eye to the sheep. This process, occupying the superior and exterior portion of the orbitar ring, presents forwards a sharper edge than in the ox, while it has comparatively less depth and strength ; except that which it acquires from the more perfect arched form of the process, and the roundness of the orbit, in this animal.

The orbitar process abuts upon the superior bifurcation of the malar bone, as it does in the ox, and has no connexion with the temporal bone ; and, deep in the temporal fossa, it is almost cut off from connexion with it by the curious lateral development of the parietal bones in these animals.

Although the frontal sinuses of the sheep, and even of the horned breeds, are far less extensive than those of the ox, yet this animal is subject to an excessive annoyance, from which the ox is comparatively exempt. There is a fly of the Diptera order (flies with two wings, and behind them two globular bodies, supported on slender pedicles, called, and properly, poisers), the Œstrus ovis, the Gad-fly of the sheep. It assumes its perfect and winged form in June and July, and then it is an intolerable nuisance to the sheep, especially in woody countries, or in the neighbourhood of copses. If only one appears, the whole flock is in the greatest agitation. They gather together with their heads in the centre, and their muzzles buried in the sand if they can find any, and are in continual motion to guard their noses against the attacks of their puny enemy. The Œstrus, impelled by powerful instinct, endeavours to deposit its eggs on the inner margin of the nose. By the warmth and the moisture they are almost immediately hatched, and the larvæ or little maggots crawl up the nose, and find their way to the residence that nature designed for them. As the eggs of the horse gad-fly, being licked from the parts on which they are deposited, and hatched by the warmth and moisture of the tongue, are conveyed into the stomach with the saliva, or with food, and attach themselves to, and live on, the inner coat of the stomach, until they are ready for their transformation, so the eggs of the gad-fly of the sheep, being deposited on the edge of the nostril, are quickly burst, and the little worms crawl up the nose. In the act of passing up the nose they seem to give dreadful annoyance, for the sheep gallops furiously hither and thither, and snorts violently, and seems almost mad. Having traced their circuitous course, through the aperture under the upper turbinated bone into the maxillary sinus, and thence into the frontal one, the larva fixes itself on the membrane of the sinus by means of two tentacula or hooks which grow from the side of its mouth, and there it remains feeding on

the mucus secreted by this membrane, from June or July to April or May. There are seldom more than three or four of these insects found in any sheep. When they have attained their full growth, and are ready to undergo their next mysterious change, they detach themselves from the sinus, and creep out through the circuitous course by which they first entered, and again they sadly annoy the sheep, who makes the most violent efforts to dislodge his enemy. The grub having dropped from the nose, burrows into the ground, assumes the form of an oval and motionless chrysalis, from which in six weeks or two month bursts the perfect fly. It is found more particularly on the sides of copses, but is recognised by the shepherd on the walls and rails near the flock. The fly lives but a short time; it has but one duty to perform, the propagation of its species. The male having accomplished this duty, immediately dies; indeed it takes no food, for it has not the organs by which it can either receive, or digest it. The female lingers a little longer until her eggs are ripe, but she too eats not, but, impelled by powerful and unerring instinct, she seeks and persecutes the nearest flock of sheep, and finds, in the manner we have described, a habitation for her offspring.

The larva having reached and fixed itself on the sinus, no longer annoys the animal: ten months pass, during which it is nourished by the mucus of the sinus, and produces neither disease nor inconvenience. In this respect it resembles the bot in the stomach of the horse, which, except existing in great numbers, is perfectly harmless. Nature would not have assigned it this residence, if it did mischief there: the permanent comfort or health, or life of the sheep, would not have been sacrificed to so insignificant a being. The stories of nasal gleet, and vertigo, and phrenitis, and death, being occasioned by it, are all fabulous. It passes the longer but secluded portion of its life harmless in its destined abode: it then, for awhile, finds a darker home, and passes through a more torpid state of existence, until it bursts into perfect life only to propagate its species and to die.

Spanish shepherds are said to use the trephine for it. They attribute various affections of the head to the worm which they are almost sure to find in the frontal sinus; and they materially relieve or remove the complaint, not by the removal of the grub, but by the bleeding which is the necessary consequence of the operation.

THE VETERINARIAN, MAY 1, 1831.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

WE have inserted in this number the course of instruction of the pupils at the London Veterinary College, traced out, after the maturest consideration, by the excellent founders of that institution. The degree of deviation in the present management of that seminary—the cause of that deviation, and its results, are subjects of deep import, and shall not be forgotten. As, however, we are, in this number, endeavouring to liquidate our arrears of gleaning from foreign journals, having other and pressing objects immediately before us, we may as well contrast the *original* plan of our school with the present course of tuition in the school latest established in France, that at Toulouse. There are faults in both; but the comparison may be valuable to our veterinary readers, at least; and the comparison between our school as *it is*, with what it *was designed* to be, and what *it was*, and what the French school *now is*, cannot fail of being interesting to every British veterinarian, and to every agriculturist too, and also to every member of society, considering the portion of national wealth which may be preserved and improved, or injured and destroyed by veterinary practitioners. There is possibly somewhat too much aim at effect in detail of French system, but it contains many important particulars too much neglected among us.

There are four professors, under the superintendance of a director.

The course is divided into two parts, *theoretical* and *practical*.

FIRST DIVISION.—THE THEORETICAL PART.

First Year's Study.

SPECIAL ANATOMY, being the study of the bones, muscles, articulations, and viscera of the horse.

GENERAL ANATOMY.—The organic elements—their immediate products, as albumen, fibrin, urea, &c. The chemical elements—carbon, phosphorus, oxygen, hydrogen, azote, and some of the

salts. The tissues, generating and simple, the last especially being considered in relation to their physical, chemical, and vital properties.

THE EXTERIOR.—The beauties, defects, blemishes, and maladies of every part of the body. The age, the eye, the integument, the distinguishing character, the power and value. The disposition of the different parts, as it regards the centre of gravity and the paces and usefulness of the horse. The foot,—shoeing, its principle, every manipulation of it performed by the pupil.

BOTANY.—The conservative and reproductive organs, or vegetable physics. The terms used among botanists, and the principles on which the systems of Tournefort, Jussieu, and Linnæus are founded.

Second Year's Study.

The special anatomy of the ox and sheep; the study of the vessels, nerves, and viscera of all domestic animals; dissections.

The continuation of general anatomy; the physical, chemical, and medical properties of the nervous, serous, mucous, and fibrous tissues.

Experimental physiology. The beautiful experiments of Flandrin and others repeated, as regards the lymphatic system; the ligature of the thoracic duct; the section of the pneumogastric nerves; the state of the chyle as influenced by the different food of the animal; likewise experiments on the nerves; the nerves with one and two roots; the fifth pair; the portio dura of the seventh.

The exterior of domestic animals will be resumed, and more particularly as to their action and power. The horse will be considered in a state of rest and of action; the laws of motion will come under discussion; the application of the principle of the lever, &c.

The art of healing will now begin to be considered. It will commence with the natural and zoological history of all domestic animals, extending even to the bee and silk worm. They will be considered in reference to their species and families, their different periods of life, the changes which they undergo, and the influence of these changes on their state of health and disease.

Next will come the influence of external agents on the nutritive and locomotive functions of the animal, the state of health and disease. To this will belong the account of medical treatment, as it regards the function of reproduction. The stallion, the bull, the ram, &c. will be considered; the female, with reference to gestation, parturition, abortion, crossing, and amelioration of the breeds. To this will succeed the general treatment of animal at different ages. The treatment of the young animal—suckling, weaning. The treatment of the adult animal—food, stable, and other management, exercise, &c.; the effect and management of the yoke, the saddle, bridle, harness, speedy, and slow work. The treatment of the aged animal—the old horse; the fattening of the ox and sheep, whether at grass or in the stall. To this will follow, preventive and precautionary means, as applicable to the cavalry horse, the draught horse, the ox, and the sheep; the means to avoid infection; the principles and laws relative to the sale of horses, and of unsoundness.

Botany will be resumed. A description will be given of edible, medicinal, and poisonous plants, and the families to which they belong.

Pharmacy.—Pharmaceutical chemistry will now be considered. Pharmacy will be divided into theoretical and practical. A description will be given of all the simple substances that are used in medicine; their natural history will be considered, and their chemical and medical properties. The manipulations of pharmacy will be next treated of; and all of which the pupils will be required to perform. To this will be appended the principles of the art of prescribing.

The Third and Fourth Years

Will be devoted to the practice of veterinary surgery. Under this will be considered the study of operations, and of surgical diseases. Under the title of surgical diseases will be comprised all those that have their seat in the extremities, or which necessarily or usually require some operation in their treatment. These will include three grand divisions,—the surgical anatomy of the parts, the principles of surgery, and the considerations which will affect the propriety and character of the operation, and the operation itself.

Daily experience proves that anatomy and surgery are inseparable. There never existed a good surgeon who was not a complete anatomist. The surgical anatomy will, therefore, first be strictly and minutely demonstrative. A skilful operator must be perfectly acquainted with the situation and extent, and connexions of the part which is to be subject to his knife. The demonstrations, therefore, will include the situation and relation of every region that may be the seat of operation, and will proceed, layer after layer, from the surface to the interior. The minute surgical anatomy being completed, the professor will recal the attention of the pupils to those parts, and to those relations of parts, most deserving of consideration in the usual or more important operations.

Thus, basing the demonstrations and the surgical treatment on the minute anatomical structure and relations of the parts, the student will be conducted to that point, that he will be able to conduct every operation without hesitation or fear, because he will have a perfect knowledge of every thing that concerns the parts on which his knife is employed.

Next will follow the prolegomena, or previous consideration respecting all operations, including all that relates to operations in general—what is necessary before an operation, during, and after it.

The first will include medicine, as connected with operations; surgical instruments; simple and complicated operations.

The second will regard the proper season for certain operations; the constitutional or local preparation of the subjects to be operated upon; the consideration of the mode of conducting the operation; the auxiliaries required, &c.

The third will include all that is necessary to render the operation safe, rapid, and effectual; the method of fixing the animal; the position of the operator, and the assistance which he will require.

The fourth embraces the means of stopping hæmorrhage; the art of dressing; the method of bandaging; the usual or occasional consequences of certain operations; the constitutional treatment of the animal operated on; the air, the food, the exercise, the medicine, the precautions, the care; in a word, all those mani-

pulations and considerations on which the ultimate success of the operation mainly depends.

Then all this will be reduced as much as possible to practice. Some subject will be chosen. It will be placed before the pupils. The surgical anatomy of the part will again be demonstrated. The precise situation and extent of every muscle, ligament, vessel, nerve, or tissue, will be described. The different modes of conducting such an operation will be considered, with reference to the full success of it; the possibility of accident, the saving of pain: then the operation will be performed, with all its manipulations, before the eyes of the pupils. By this means the knowledge of the parts and the knowledge of operations will be most easily acquired, and indelibly imprinted on the memory, and the practical application of every portion of study secured.

As an auxiliary preparation for this, the dead animal, or a certain portion of it, is often placed before the pupil. He is required to demonstrate the part to be operated on; to describe the usual mode of operation; the deviation from it suggested by peculiar circumstances; the object to be effected; the danger to be avoided; and then he is required to perform the operation; to go through all the preparatory and subsequent processes; and, having been prepared by this, he will next be required to operate on the living animal before his fellow pupils, and under the observation of the Professor; and to give the previous demonstration, and to trace the objects he means to accomplish in the different steps of the operation.

In the lectures, and as much as possible in the operations, a regular order is preserved, of which the following is an abstract.

Punctures for the evacuation of fluids contained in natural or artificial cavities, as in anasarca, phlegmonous tumours, paracentesis, puncture of the rumen, &c.; or to effect some other purpose, as inoculation for various diseases, acupuncturation, &c.

Incisions. Bleedings, scarifications, divisions of parts; the preparatory processes in every serious operation; nicking, &c.

Excisions. Amputation, docking, neurotomy, castration, removal of soft or hard tumours; the greater number of operations on the feet; cropping.

Cauterization, actual or potential, by fire or chemical agents; how applied, how modified in sprain, weakness, enlargements, fungous growths, indolent ulcers, envenomed wounds: the principles on which they are founded, the effects which they produce.

Reductions, whether of hard parts, including fractures and luxations, or soft parts, as hernia.

Compressions. The theory and application of bandages; their efficacy in many otherwise intractable cases; their inconveniencies and dangers; the mode in which they should be applied to various parts.

Extractions of foreign bodies from different parts; the eye, the trachea, the œsophagus, the stomach, the bladder, the feet: the respective operations for these purposes. Mechanical assistance in parturition.

Trepanning, or perforating the hard parts, to give escape to liquids accumulated in their cavities; perforations of the bone, the horn.

The operations will be principally confined to the winter months; the treatment of surgical diseases will occupy the summer.

Review.

Quid sit pulchrum, quid turpe, quid utile, quid non.—Hor.

An Essay on the knowledge of the Ancients respecting the Art of Shoeing the Horse, and of the probable period of the commencement of this Art; by Bracy Clark, *F. L. S. Member of the Royal Institute of France*, &c. Second edition, London, 1831.

We will venture to predict, that the veterinarian who chooses to possess himself of this learned production will experience no disappointment whatever from its prepossessing title. Mr. Clark has been at much pains to search the best authorities for information on this interesting subject, while, as he proceeds on his investigation, he has evinced considerable erudition and professional tact in appending such expositions to many passages in ancient

authors (particularly in Homer), which in other hands might have given rise to misconception and error.

We shall not attempt any review or complete analysis of this production, alike creditable to the author and to the profession to which he belongs; but shall only make some extracts from it, and with the view of inducing our readers to possess themselves of a work valuable to the scholar, and interesting to the horseman and the practitioner.

Mr. Clark adduces very strong evidence, that the ancients were unacquainted with our art of shoeing; although "they appear at times to have had recourse in difficulties, and in cases of abrasion, to artificial defence, and which was probably of the most simple kind."

"As being one of the most ancient, and frequently brought forward on these occasions, we shall first advert to the expression of Homer, who, in describing the car of Neptune, uses the epithet 'brazen-footed' to the horses attached to this car, which has led several of the learned into the belief that these ancients were not unacquainted with modern shoeing, and that the horses were actually shod with shoes of brass."

"It is not, however, from the language of poetry (as Mr. C. very justly observes) that it would be so proper to form decisive conclusions upon this subject; as figurative language will often admit of such very different interpretations: we shall therefore leave our direct proof of their ignorance in this respect till we come to the more plain prose writers of succeeding times, who have expressly treated of the horse himself, and where the proofs, we believe, will be of a nature the most indubitable."

"If it were true, and admitted for a moment, that the ancients did not understand shoeing (of which demonstrative evidence will appear hereafter), then nothing would have been more natural to a people so circumstanced, and whose whole dependance was placed *in the powers and strength of the natural hoof to endure labour*, then to extol and hold in the highest perfection this very necessary property, and to give it preference and higher value than any other, as without it the horse was to them nearly useless; and it would assuredly be the very first part to fail them if not so endowed: hence, we believe, will be seen the true intentions of the writer."

Mr. C. explains this further, by observing that—

"Brass (or a kind of brass) was the chief metal in use in those early times of Homer; and, from being the strongest substance they were acquainted with, it became very naturally with them *the epithet of strength*; and is continued down to this day, and familiar in most languages, as with us in the phrases,

brazen towers, brazen lungs, brazen face, &c., that nothing could have been more perfectly natural than Homer's application of it, where the strength and durability of the hoof was intended to perfect the character of the horse.

The strength of the natural hoof to a people unacquainted with shoeing, it is reasonable to believe, would, not only with their poets, be a leading subject of exultation; but it is likely also this valuable property, with their generals, would be a matter of some solicitude, since the safety of the soldier would much depend upon it. Accordingly, we find in the writings of Xenophon, sufficient evidence thereof,—a warrior who was intimately acquainted with the horse and the management of him,—who was chief conductor of the cavalry movements of the ten thousand Greeks in their famous retreat from Persia, &c. His solicitude respecting the feet of horses is remarkable; and his directions in this respect to preserve them hard and fit for service, as a matter of great curiosity, we subjoin.

" 'In like manner, as food and exercise are sedulously to be administered to the horse, that his body should be strengthened, so the feet also require a careful attention: since these, from the wetness or smoothness of the stable will be injured, even such as are the most perfectly formed. In order to prevent the moisture from lodging, the floors should have a descent; and, that they should not be too smooth, stones should be imbedded in one another, corresponding in size to the hoofs; for in such stables those horses that stand therein will have their feet strengthened. Next also, he that has the care of the horse should remember to lead him forth when he is to rub him down, as it is best to remove him from the crib after the mid-day feed, that he may have a better relish for the evening feed.

" 'In order to render the yard or place outside the stable the best possible, and that it might tend to spread or dilate the feet, a sufficient number, as four or five waggon-loads of round stones, cut or docked round to the proper size, should be thrown down at random, and surrounded with a rim or border of iron that they may not be scattered; for by setting his feet on these, the same purpose is answered as though he had exercise during a certain portion of every day on a paved way. It is proper, when they be rubbed down and curried, that he should use his hoofs as when he is walking, and the frogs also of the feet will be strengthened by the stones strewed about.' "

From these ancient authorities, Mr. Clark proceeds to adduce extracts from the Holy Scriptures, demonstrative of the same facts:—" Then were their horses' hoofs broken by the means of the prancings of their mighty ones," *Judges* v, 22. " With his

horses' hoofs shall he tread down thy streets," *Ezekiel* xxvi, 11. Speaking of the downfall of Tyre, also, "Arise and thresh, O daughter of Zion; for I will make thine horn iron, and I will make thy hoofs brass," *Micah* iv, 13. There is a remarkable expression of the prophet Isaiah, who, in foretelling the downfal of Jerusalem, uses these words: "Whose arrows are sharp and all their bows bent; their horses' hoofs shall be accounted like flint, and their wheels like a whirlwind," chap. v, 28; alluding to the Roman armies, who but too dreadfully fulfilled this prophecy.

It is also to be remarked, that here the material selected for the metaphor or epithet of strength, is harder than brass, and such as could in no way be made into shoes. Also, their sculptured figures of horses, on the celebrated columns of Trajan and Antoninus, everywhere without shoes, come in strong confirmation of this truth."

From the combined testimony of Homer and the Holy Volume, Mr. Clark resorts to other ancient writers for further proofs of his assertions—such as have been "engaged in rustic occupations and in war:" among these we find Diodorus Siculus, Cinnapius, Appianus, &c.; also Varro, Columella, and Vegetius.

Mr. Clark next explains to us what kind of defence was, on occasions, resorted to by the ancients. We shall find it very different from an iron ring with nails inserted into the hoof, as is the modern custom.

"Though it was certainly not the custom of the ancients to shoe their horses, yet they appear at times to have had recourse, in difficulties, and in cases of abrasion, to artificial defence, and which was probably of the most simple kind.

"And we have seen by the preceding quotation from Suetonius, that the horses of the Emperor Vespasian were defended in some way, as the coachman or muleteer got down to fasten one of them, while a petitioner for some favour gained opportunity of access to the emperor, who, suspecting the trick, facetiously asks the man how much he should get for the shoeing, as 'he meant to go halves with him:' it is clear, therefore, some defences on that occasion were used: now, the question is, as they could not be nailed shoes, of what description were they?"

After culling passages from several Greek and Latin authors, bearing more or less upon his subject, our author sums up all the information he has been able to collect in the following paragraph:—

"It is, therefore, most manifest and clear from all the passages formerly quoted, and many others we might quote from Vegetius himself, concerning 'detritis pedibus,' and 'subtritis pedibus,' lib. 2, c. 58; also, 'animalium ungulæ asperitate ac longitudine

itinerum deteruntur,' lib. 2, c. 55; also, 'in agendo intinere damnum e diurno detritis pedibus majus sit quam per noctis quietem tantum renasci possit,' (Ruellius Script. Græci Veterin. lib. 2, fol. 99), that the ancients did not generally shoe their horses; and that when they did, it was of the most simple kind, and much as they were used to shoe their own feet; and, as we have before described, a sock of leather or felt, going round the whole foot, with sometimes lemnisci, and sometimes with iron attached to strengthen them, as is seen pretty plainly in the following passage: 'pedis quos sanos habet glante ferreo vel si difuerit, spartea calceatis, cui lemniscos subjicies, et addita fasicola diligentissime colligabis, et suppositiciam facies parti illi qua misera est, ut planas ungulas possit ponere:' *Vegetius*, lib. 3, c. 13. Here we see, perhaps, the whole machinery of their shoeing, and plainly and intelligibly enough; but we must not pass over the unique expression glante ferreo, which occurs here, and is not again seen in this or any other writer that we know of: it may, perhaps, be but an insertion or corruption of the text with which, by frequent transcription, the work abounds."—"It may have been, possibly, a piece of iron turned round to the figure of the horse's hoof, and which was then fastened on by rivets, or otherwise, to the lemnisci or leather soles; and this, it is not at all impossible, might, under the pressure of necessity, have been applied directly to the foot itself, and given birth to the modern horseshoe."

Having considered the nature of their shoes, our author advances a step further, and inquires how they were fastened on. "This," he says, "must have seemed so common and natural to them, that a description of it could hardly have been expected: we have it, however, in the above passage, where it says 'et addita fasciola diligentissime colligabis;' and that this was really the way, we can give further collateral proof from another and indubitable source.

"Engaged some years back in looking over the veterinary Greek writers, I was led to observe, that Apsyrtus complained of the horses' legs being often cut with the violence used in the application of these bands, even so as to injure and lay open the joints; and he tells you how they were used to treat it. Having copied this passage carefully into my former dissertation (1st edition, 1809), I was, shortly after sending it forth, induced to visit the British Museum, in order to see some horseshoes of the nailed kind, that were positively said to have been found in the excavations of Herculaneum, but which proved not to be true, for they had, as I ascertained on inquiry of Sir Joseph Banks himself, who had sent them to the Museum, been found in a boggy pit on his estate in Lincolnshire, and appeared, on examination, of about the

age of the Commonwealth; and having been presented by Sir Joseph, were placed for a few days, by some inadvertency, in the same case with the Herculaneum relics, which gave rise to the report. Whilst examining these shoes, I was desired by the curators of the Museum to examine another curiosity, which they were unable to give any feasible account of, and which was an ancient tablet, representing a horse or chariot race, with the horses' legs having some unaccountable envelopments, which they doubted the propriety of representing: those, on examination, I pronounced to be the bands alluded to by Apsyrtus, under the name of hippopodes, and are probably identical with the fasciola mentioned in the above passage by Vegetius."

* * *

"That the ancients defended their horses' feet in this simple manner there can be little doubt; and, as a sort of collateral confirmation, there is to be seen in the collection of pastes, or impressions from engraved stones of the ancients, now preserved in the British Museum, and formerly belonging to Baron Stosch, the representation of a soldier in the act of applying a defence of this description to the horse's legs; at least, the attitude he is in makes it probable that such is his object: he appears kneeling down in front of the horse, with his right hand grasping the off-leg, while another soldier standing by is holding up the other, bent backwards to the elbow, assisting him. Besinger imagines this soldier is applying the shoe of broom about the shanks, which we should be led rather to doubt, and to conjecture that it is with more probability these same hippopodes, as the broom not being used on the road, hardly needed to have been carried so high up the legs to be fastened on sufficiently."

We here take leave of our author, whom we shall always meet with pleasure on this his favourite and peculiar ground; and we do assure our readers, that they will not be displeased with the excursion to which he invites them.

Extracts from Journals, Foreign and Domestic.

A new Cure for Glanders.

[Extracted from one of Dr. Elliotson's Chemical Lectures.]

I will take this opportunity of mentioning, that I have received a letter from a gentleman respecting the treatment of glanders in horses. In consequence of being honoured (and I

do consider it a great honour) with the publication of these lectures, I receive continually a great number of letters, most of them—all of them, I am happy to say, in the highest degree friendly. I have, among others, received one from a gentleman of the name of Pedduck, but whom I have not the honour of knowing, who says, that in consequence of the case I have published on glanders in the human subject, he thinks it right to give me the information which his note contains; and I may as well take this opportunity of giving it publicity as any other, by reading the letter. It is as follows:—

"Dear Sir,—Your very excellent paper on glanders in the human subject, published in the *Med. Chirur. Trans.*, of which an analysis is given in the *Med. Chirur. Rev.*, has called to my remembrance a remedy mentioned to me by the veterinary surgeon of the 13th regiment of Dragoons at Canterbury, in 1820, for the cure of glanders in horses. It consisted simply of Venice turpentine diffused in steam. The mode of application was, by putting a quantity of scalded bran, mixed with Venice turpentine, into a horse-hair bag, and tying it over the horse's head, wrapping his whole body at the same time in a large blanket, wrung out of boiling water, and covering him with several horse-cloths. This threw him into a profuse sweat, promoted free discharge from the frontal sinuses and nostrils, and the healing of the ulcerations. A cure was the consequence of this plan of treatment, continued daily, when the bones had not already become carious.

"Having myself employed the general vapour-bath, with terebinthinate medications, in many cases of malignant sores, both in private and dispensary practice, with success, you will pardon me for recommending to you a trial of the same remedy, in the event of more cases of glanders in the human subject presenting themselves to your notice.

"I have the honour to be, dear sir,
"Your faithful servant,
"H. Pedduck, M.D."

Situation of Hydatids in the Brain of Sheep.

At a meeting of the London Medical Society a short time since, the following experiment on a sheep which was subject to the formation of hydatids in the head, was related by Mr. Stephens in the course of some remarks which were made on the greater success which might be expected to attend tapping in cases of acute than in chronic hydrocephalus. He observed that

he had once been led to think that hydatids always formed upon the brain in sheep ; but he had since found them occur within it. On one sheep he made the following experiment:—He took out a portion of bone with the trephine, and on cutting through the dura mater, a very large hydatid partially protruded. This he attempted to extract, but the cyst broke in the trial. He afterwards extracted the cyst, and upon looking through the opening made with the trephine, he found the interior to present a large empty cavity; the brain appeared completely gone. He then let down a light through the opening into the cavity of the skull, by which it appeared that nearly the whole of the cerebrum was wanting. The opening being afterwards closed, the sheep got up and fed, and seemed better for the three following days, but on the morning of the fourth he found it lying convulsed, in which state it soon died. Upon opening the head, he found a little of the cerebrum at the base, and some remains at the sides, forming an imperfect shell of brain; there were several other smaller hydatids remaining. From this Mr. Stephens concluded, that when an operation succeeded in these cases, it must be where there was only a single hydatid, and where there was but little disorganization of the brain : he agreed in opinion, therefore, with those who thought there was a better prospect of success in operating in acute than in chronic hydrocephalus; because in the former there was no particular disorganization of the brain accompanying the collection of fluid, whilst in the latter, portions of the brain were in many instances destroyed ; and in such cases, even if you could preserve life, you could not preserve or repair the intellect. Sir Astley Cooper once shewed Mr. Stephens a ewe of his, where he had opened an hydatid and discharged the water, and in which case the animal had recovered, and had afterwards borne a lamb.—*(Lancet.)*

An Hydatid in the Lumbar Portion of the Spinal Marrow of a Lamb aged eighteen Months.

By M. Dupuy.

This lamb was in a state of extreme emaciation. It could not stand on its hind legs, which were devoid of feeling and motion, and it constantly lay down. On opening the animal an hydatid was found in the grey substance of the lumbar region of the spinal marrow. This worm, about the size of a goose-quill, and half an inch in length, was composed of a thin transparent membrane, resembling a spider's web, and presented on its surface many

hundreds of animalculæ, which appeared like little white points. On being examined with a lens, a minute cavity was seen in each, which seemed to be its mouth. These hydatids were grouped together, and did not occupy the whole of the external membrane of the envelop or bladder, and portions of the spinal marrow, answering to these groups, were irregular, furrowed, and covered by a false membrane.

May not the dropsy of the spinal canal, described by another writer, be considered as produced by the development of vesicular worms like these, the envelope of which, beside being of extreme thinness, may be accidentally broken, and present to the observer the appearance of simple dropsy ?

This etiology is the more probable, as the researches of M. Majendie have proved that in a state of health there always exists a great quantity of fluid round the spinal marrow. The presence of this fluid has sometimes been considered as dropsy; and possibly we have fallen into the same error. In opening horses which have died of staggers, we have found no other morbid appearances than great distention of the great ventricles of the brain, by a fluid limpid as water.

Journal Theoretique et Pratique.

Hydatids in a Pig.

By M. Dupuy.

Palsy of the hind limbs, with loss both of motion and feeling, was observed in a pig eighteen months old. On carefully examining him after death, the muscles were discoloured and softened. There were in the psoas muscles numerous cysts enclosing hydatids. Other cysts, with their parietes more thickened and fibrous, inhabited the muscles surrounding the trochanter, containing likewise hydatids. These parasites were also found in the lungs, the liver, and the cortical substance of the kidneys.

Between the internal surface of the cyst and the hydatid, was a fine white powder, resembling pulverized bones. The spinal marrow was softened about the lumbar and sacral regions, and the membranes were slightly reddened, particularly about the roots of the lumbar nerves.

This case of palsy, occasioned by vesicular worms, possesses considerable interest. It shews that loss of motion and feeling may be produced by very different causes. Can this kind of disease be classed among the neuroses ?

Journal Theoretique et Pratique.

Profound Coma, following Enterites, in a Horse.

By M. Liegard.

A horse of five years old, that had not lain down on the preceding night, but had been continually pawing, presented the following symptoms:—Pulse small and concentrated; artery rolling; extremities and ears cold; redness of the mucous membranes; continual agitation of the tail; and slight stamping of the feet. M. Liégard considering these as characteristics of enteritis, bled to the amount of eight pounds, gave emollient drinks and injections, and ordered the horse to be covered, and put on mash diet. The improvement which he manifested some hours afterwards continuing until the following night, a little hay and chaff were given to the animal, which he ate with appetite. Two days after that he returned to his usual regimen, except that oats were forbidden. This was imprudent; for on the fourth day he became dull, the pulse small, and the temperature of the body reduced. On the fifth day there was profound coma. The head rested on the border of the manger; the lower lip and the tongue hung down; the horse was unconscious; the conjunctiva red; the surface of the body cold; and the walk staggering.

There appeared to be cerebral congestion, and consequently twelve pounds of blood were drawn; four setons, with stimulating ointment, were placed about the haunch; frequent mucilaginous injections were thrown up; the animal was well wisped, covered warmly, and put again on mash diet. At night a slight amelioration, in spite of the lethargy, gave opportunity to offer some thin gruel, with honey and nitre, which the horse drank with difficulty. He passed the night tranquilly; and on the morning there was a slight amendment in the symptoms, and the setons began to suppurate. At night consciousness began more decidedly to return; the eyes were more open; the pupils less dilated, and the pulse at its natural standard. The animal raised his head; began to search the manger; drank easily; masticated his hay; but was unable to swallow. Acidulated gargles were used, with mucilaginous injections, with a little sulphate of soda and nitre in thin gruel. Three days afterwards the improvement continued, and the animal began to return to his usual food. On the seventh day the setons were withdrawn, and the horse was sent to work.

Journal Theoretique et Pratique.

An easy Method to Blister Sheep.

By M. Favre.

Blisters usually produce little effect on the sheep; and their action is slow and feeble; but this is to be attributed to the manner in which they are employed. The wool is first *pulled off* from the part, and the blister-plaister applied. Twelve hours afterwards there will not be found any vesicles; but the cuticle will be whitened, shrivelled, and in part peeled off. The cuticle is then removed, and the plaister replaced. After twelve hours more it is again taken off and the sore wiped clean; and this is repeated every twenty-four hours, as long as it appears to be necessary to keep the blister open. The plaister being removed, the wound soon dries up. At the second dressing the surface of the sore is found of a vivid red, and much white thick pus is discharged; at the third, the suppuration is more abundant; at the fourth, the whole of the surface which the plaister touched is detached, when a white or yellow rough membranous substance appears, elastic, easily distended, and difficult to be torn. The suppuration will continue ten or fourteen days after the desquamation: the sore will then heal in six or seven days, and the wool will be replaced in fifteen days, without any difference in quantity or quality.

The plaister is thus composed:—Take of powdered cantharides eight ounces, euphorbium one ounce, black pitch nine drachms, Venice turpentine seven drachms, and yellow wax five drachms; melt the pitch, the turpentine, and the wax together, and stir in the powder. The plaister should be spread on a piece of soft skin, applied to the surface warm, and confined by a circular bandage.

Journal Theoretique et Pratique.

Ventricular Hydrocephalus in a Horse seven Years old.

By M. Forthomme.

Symptoms.—On the 11th of March 1829, at six o'clock in the morning, there was very great difficulty in the movements of the vertebral column, and principally near the loins; weakness of the limbs; the jaws fixed, pulse full, and seventy. This lasted about a quarter of an hour; then followed a first exacerbation of five or six minutes, during which the animal reared, beat himself about, and threw himself on the manger with very great force. We profited by a moment of calmness to lead the

patient to a covered shed. Each motion of the joints caused a noise loud enough to be heard at a distance of fifteen or twenty paces; the eyes were fixed, and insensible to the touch; there were partial sweats at the arms and on the chest, and increased stiffness of the vertebral column. At nine o'clock there was a second fit. The horse rushed forward with the greatest violence, in spite of all our efforts to hold him; his eyes were protruding, the conjunctiva red. He then fell suddenly; tried to rise; fell again, and died in the most dreadful convulsions. The subtraction of ten pounds of blood, embrocations with a mixture of oil of turpentine and tincture of cantharides, pumping of cold water on his head, and irritating injections, could not, in the least degree, arrest the progress of this disease. The only morbid appearance which M. Forthomme found was about four ounces of serous liquid, and very limpid, in the ventricular cavities of the brain; and he thought that the disease must have existed some time. This is the more likely to be true, as the horse had been very viciously disposed; so that from the 28th of March 1827, to the 11th of March 1829, he had done very little work; and that particularly during some unusual heat he fell all at once, and then quickly rose, and seemed to be as well as before.

Journal Theoretique et Pratique.

Pulmonary Congestion following Hypertrophy of the left Ventricle of the Heart.

By M. Liegard.

After having been in excellent condition, and fully capable of work, a mare, eleven years, old, belonging to a troop of chasseurs, became gradually, from July 1828, so thin and weak, that in September she was no longer able to take common exercise. M. Liegard took four pounds of blood, and gave for nourishment chaff, and water whitened with bran or barley meal. Although the mare seemed to find benefit from this regimen, she had, on the 29th of September, an acute attack of disease characterized by the following symptoms:—The neck extended; the head supported by the edge of the manger; the pulse small and wiry; conjunctiva red, bordering on black; respiration very laborious and sonorous; the flanks heaving considerably; extreme dilatation of the nostrils; cold sweats, very abundant; and the temperature of the whole frame extremely low. After a first bleeding of six pounds the animal fell into a syncope, and could not rise for nearly a quarter of an hour. Setons were applied to the chest, and four more pounds of blood taken;

drinks composed of an infusion of elder flowers and camomile were given without success, although at eight o'clock the pulse was a little more developed, and the temperature of the body not quite so low. The patient fell on her litter at nine o'clock, and the two symptoms just referred to, and which had somewhat diminished, acquired the highest possible intensity. The pain seemed to increase; the limbs became stiffened; and death took place at half past nine. All the subcutaneous vessels were gorged with very black blood; the lungs were thickened and also gorged with blood, shewing a great number of their small vessels ruptured; the trachea was filled with a frothy mucus, in which was observed several bloody streaks. The wall of the left ventricle of the heart had one-third more than its natural thickness, and contained no blood. The left auricle, likewise, contained no blood, while the two right cavities, the large veins, the liver, and the spleen, were filled with blood. M. Liégard thought that the mare died of a pulmonary congestion, resulting from the obstacle which the hypertrophy opposed to the course of the blood.

Journal Theoretique et Pratique.

St. Vitus's Dance (Chorea) in the Horse.

By M. De Beaux.

St. Vitus's Dance, which is a frequent sequela of distemper in dogs, is very rare among the solipede. Gohier and M. Huzard, senior, have related two cases. M. de Beaux here gives a third example, which seemed to him to possess considerable interest. The causes of the disease were unknown to him. The animal was destroyed; but examination after death could not take place. The following are the symptoms and the treatment:—From the beginning of October 1824, the horse, which was glandered, had a violent diarrhœa. The flux from the nose, and the enlargement of the lymphatic glands under the jaw, had suddenly disappeared; the fæces were yellow, black, gelatinous, and fœtid; the pulse small, irregular, and accelerated; the mucous membrane yellow; partial but abundant sweats; the flanks tucked up, without heaving; convulsive movements of the limbs at intervals of two hours, after which the pulse rose and gave nearly seventy pulsations; the pupils were much dilated, and occasionally, for a short period, the animal would remain perfectly still; the head elevated, the neck stiff, and not conscious of any thing that was passing around him. Suddenly a general trembling would come over him, followed by profuse sweats, and then only the pain seemed

to cease. M. de Beaux did not know well to what disease all this was to be referred; and he was much inclined to ascribe it to some stomach or intestinal affection accompanied by worms. The animal had been very eager for food, and had passed worms, and had seemed frequently to labour under violent cholic.

The means usually indicated in similar cases were employed, and the patient was tranquil until the 5*th*; then followed complete loss of power over the voluntary muscles, convulsive movements of the muscles of the chest, and symptoms of epilepsy. Ten pounds of blood were taken; he was well rubbed on the back and under the belly; mucilaginous clysters were thrown up; cold water was dashed on the poll; and antispasmodic drinks were given.

On the 6*th* there was the same intensity of symptoms: sedative drinks were then given, and eight pounds of blood taken from the jugular; and the horse was calm the rest of the day.

On the 7*th*, the diarhœa very great, with a most offensive smell; the pulse more regular, membranes less red, and the animal drank a great deal of acidulated water.

M. de Beaux then describes the variations which the disease presented from the 7*th* to the 18*th*. From the 12*th* to the 13*th*, the glands of the jaw were again enlarged, the discharge at the nostril re-appeared, and the symptoms of chorea gradually diminished. Repeated bleedings, with valerian, opium, and assa-fœtida, formed the treatment.

On the 18*th* the symptoms of St. Vitus's dance totally disappeared; only, when the animal was exercised a little more than usual, a slight trembling of the hinder extremities was perceived. The horse then travelled from Beriers to Montélemart, and, glanders excepted, he appeared perfectly well; but the moment he stopped, and if they had driven him a little too fast, a trembling of the fore extremities was distinctly seen. The horse was destroyed on account of being glandered, and M. de Beaux had not the opportunity of examining him, which he greatly regretted. He had uniformly said, when speaking of St. Vitus's dance, that the prognostic must be unfavourable, and that the case now related proved it. The proof, however, is not so complete as could be desired.

Journal Theoretique et Pratique.

Account of a Horse with Three Bladders.

By M. Prevost.

This animal had incontinence of urine, which resisted all medical treatment; and, two months afterwards, inflammation of the

bowels followed. M. Prevost was called in when the horse was dying. The canal of the ureters was lined with a yellow, hard, tendinous membrane, which crepitated under the knife. Its thickness varied from three lines to two inches. At a little distance from the place where we usually find the sphincter of the bladder, the canal of the ureter bifurcated. One led to a reservoir six inches in length and four wide, which was the bladder. The walls were an inch in thickness, and the internal membrane presented several black spots as large as a franc. The muscular membrane, the only one that was thickened, was composed of a ligamentous, cartilaginous tissue, crepitating under the scalpel. The arteries were in their natural state. The other branch also bifurcated, after it had been continued about an inch, and terminated in two pouches less extensive than the first, elongated, and having some resemblance to the very large finger of a glove. These he considered as supplementary bladders.

The above is a most extraordinary account: it is not related with the accuracy of an anatomist; and a contemporary French editor very shrewdly asks, might not these supplementary bladders be the vesiculi seminales displaced, enlarged, and in a morbid state?

Journal Theoretique et Pratique.

Experiments on Camphor.

By M. Dupuy.

Camphor, administered internally, whether in a state of powder, or dissolved in fixed oil, or in the yolk of an egg, is considered as an antispasmodic and sedative. In large doses it is said to be stimulant, and might cause death by acting on the brain, or inflaming the digestive tube. In the second volume of the Materia Medica of Bourgelat, camphor is called a sedative. It is employed in acute diseases, dysenteries, fevers; it is also recommended for inflammatory tetanus. Under the form of a soft paste made with a small quantity of spirit of wine, it is used when the capsule of the coffin-joint is opened. It is also regarded as an incisive, and as a resolvent, in cases of contusion and of recent tumours: it is said to be given in doses, from two drachms to two ounces to large animals, and from half a drachm to four drachms to small ones.

Cullen assures us that it is very difficult to determine what are the virtues of camphor, on account of the various contradictory opinions which are entertained on that subject. This opposition of opinion proceeds from the belief that it is sometimes a stimulant and sometimes a sedative. He says that, introduced into the stomach, it acts in a singular manner, as it were by some

vapour proceeding from it, since, after having produced the greatest effects on the system, neither its volume nor its weight appear to be sensibly diminished. He believes that it is by the medium of the nerves that its influence is propagated to the rest of the system. It appears to him that its action is sedative. He thinks that it destroys the mobility of the nervous power, and that the symptoms of stupor, convulsions, delirium, and fury, which it occasions, may be explained by the struggle which follows between the sedative power of the drug and the re-action of the system. He adds, that he cannot believe that inflammation can take place, because the proper balance of the system follows so quickly after having taken the largest doses of camphor. We shall not enter with the author into the examination which he makes of the diseases in which camphor has been successfully used, because that subject would lead us away from the plan that we have adopted. We have, nevertheless, thought it necessary to make known the opinions of these authors on the effects of this drug.

Little satisfied with these notions, we have thought it useful to make some experiments on the horse with this drug.

A first experiment was made on a Polish draught mare fifteen years old. The pulse before the experiment was thirty-seven. The beatings of the heart were likewise counted. The respiration a little accelerated gave twenty-six movements, or thirteen inspirations and thirteen respirations in a minute. Half an ounce of camphor was administered to this animal in the form of a ball. Half an hour after, convulsive movements of the lips were observed; the pulse became full, accelerated, giving forty-six beats: the respiration became also more frequent, and the temperature of the body was found to be augmented. The mucous membranes appeared reddened, although they were pale before the experiment. At the end of an hour the pulse was fifty-four, and stronger. She manifested greater sensibility on the skull, and there were convulsive movements of the muscles of the tail: the air respired was hot, and exhaled a strong odour of camphor.

The animal being examined two hours after the administration of the medicine, was much calmer, and the pulse less frequent. The mucous membranes appeared to be less red; and at length the temperature of the skin became equally lowered.

That which struck us in this experiment was, that all the symptoms that attracted our attention had disappeared in three hours after the administration of the medicine, and that the animal had returned to her ordinary state; she had drank and eaten her rations as usual. This last circumstance determined us to make her take four ounces the next day in the same form.

She manifested an hour afterwards symptoms similar to those we have related; but we observed more convulsive movements in the muscles of the neck, with sudden agitation and hasty and rapid shakes of the head, like to the motions which follow a strong shock of electricity. The animal seemed to be sadly frightened. The eye was convulsively agitated; the pupil dilated, and the sight totally suspended. The nostrils were much dilated, and all the vessels of the skin turgid and prominent. She rested her head against the wall, as in vertigo; the jaws were at times firmly clenched, and then they were agitated by strong convulsive movements: when left to herself, the animal turned round in a circle, falling and rising again immediately. The least noise, like that which is produced by striking the ground, augmented these symptoms; a bleeding of six pounds, however, sensibly diminished their intensity. The blood appeared very red. Two hours afterwards the animal became much calmer; but, after a remission of three quarters of an hour, a new exacerbation supervened less violent than the first. A second bleeding relieved this. This second remission lasted an hour and a half. A third attack succeeded, and the animal ran round as she did at first; a little while after was a fourth attack, accompanied by clenched teeth. We counted nearly eighty arterial pulsations in a minute, and observed that the general convulsive movements were in the flexor muscles, and at the moment when the heart struck against the side, as if each contraction of that organ produced the effect of an electric shock. The animal felt a little calm after this violent agitation; she returned to the stable, and laid down, but with a great deal of pain, and immediately stretched her limbs stiffly out. The pulse was small and hard, and had reached one hundred, and the skin was covered with perspiration. At the end of twelve hours the pulse and the respiration were still more accelerated. The horse rolled and struggled with her utmost force; so, that to put an end to her sufferings, it was decided to bleed her to death.

Post-mortem Examination.—The mucous membrane of the point of the cœcum was red, livid, infiltrated, soft, without any smell but that of camphor. It was the same in the cœco-gastric portion of the colon. The food contained in this last intestine was very dry. The small intestines presented nothing remarkable. The stomach contained a quantity of liquid which smelt strongly of camphor. The rugæ of the left cavity of the stomach were red. The tissue of the kidneys was yellow, and the mucous membrane and the bladder slightly inflamed. The uterus was full of a white matter, which appeared of an albuminous nature. Its internal membrane presented a great num-

ber of small cysts which contained an aqueous fluid. The pulmonary substance was red, and the walls of the four cavities of the heart had several spots of ecchymosis under the internal membrane, and more numerous in the left venticle than in the right. The plexus choroides of the brain and the cerebellum were red and infiltrated. The nasal membrane was also red, and gorged with blood.

Another Experiment :—A sorrel-coloured cow, two years old, took an ounce and a half of camphor, suspended by the aid of the yolk of an egg in three pints of an aromatic infusion. It was scarcely given when she was seized with a convulsive cough, as if a portion of the drink had got into the trachea. The animal soon began to stagger, drew back from the manger, and pulled strongly on her halter. Her eyes became prominent, and the temperament of the skin rose rapidly. The pulse became quick and hard, the respiration short, frequent and plaintive. The breath was very hot, smelling strongly of camphor. Convulsive motions of the back of the mouth, and of the neck, were observed. The head was drawn down to the breast by rapid and convulsive flexions. The mouth was filled with foam ; the eyes revolved in their orbits ; and the orifice of the nostrils was enarged.

The respiration became more and more difficult, and the animal seemed every minute nearly suffocated. She fell on her side, and got away from the manger ; she arose, but only speedily to fall again. Her limbs seemed to be no longer under the controul of the will, and she had not the power to change her position, or to rise. At length death took place with violent and horrible convulsions. The examination, which took place almost immediately, offered a few remarkable lesions. The ventricles of the brain were distended by a lemon-coloured watery fluid. The same peculiarity was also observed throughout the spinal canal, and especially near its termination. The membranes of the spinal chord, through its whole extent, were injected and red. The mucous membrane of the back of the mouth, the true stomach, the intestines, and the larynx, was red, without any other particular alteration. Ecchymoses were observed in the left ventricle of the heart. Every part of the animal was so impregnated with camphor, that, after a long cooking, the muscles and the liver preserved still the taste and strong smell of camphor. An alteration which we ought not to pass in silence, is, that the globules of blood were separated by an æriform fluid. This phenomenon was remarked in the vessels of the cerebrum and the cerebellum, and, above all, at the origin of the spinal chord, and in the coronary and spiral vessels of the heart. The lungs were puffed up, and the interlobular cellular tissue distended by an elastic fluid.

Another cow aged four years, to which a like quantity of cam-

phor had been given, shewed the same symptoms and the same remarkable lesions.

It is not merely yesterday that we were aware of the alterations which took place in the spinal chord. We read, page 28 of the Essay on Epizootics, by Dr. Guersent, published at Paris in 1815, as follows:—"The examination of the nervous system, which has not yet been sufficiently attended to, has particularly attracted the attention of M. the Professor Dupuy; and in several examinations of dead animals made during the epizootic of 1795, and during that of 1814, he constantly observed the following morbid appearances:—the spinal marrow was more injected, and not so soft as in its natural state. The internal membranes were often a little redder, and contained in their duplicatures a large quantity of watery transparent fluid. It was very abundant near the lumbar and sacral regions, and the medullary substance in these places was so softened, that it was reduced by touching to a sort of pulp, so that we might be tempted to believe it a species of hydrorachis, if we were to judge only by the state of the parts in the dead body. The cellular tissue of the lumbar and sacral nerves was generally gorged with a bloody serosity, and on the cow observed in 1795, the nervous threads were spread over with little black ecchymoses. The brain was not so soft as the spinal marrow. It appeared generally to be in a natural state; nevertheless, sometimes it was more injected, and the internal membrane redder. The ventricles were often filled with an abundant serosity, and sometimes of a citrine colour. M. Dupuy observed in one case, that the arachnoid membrane was overspread with little black ecchymoses in the folds which this membrane forms among the circumvolutions of the brain. He observed the same alteration on the choroid plexus." And a little further on, at page 29, "M. Dupuy has observed, in several carcasses, an infiltration of air into the tissue of the lungs. The veins at the base of the brain frequently contained air. The respiration of these animals was very laboured."

We think that if M. Bouley, jun., had seen these passages in the Essay of Dr. Guersent, he would not have passed them by in silence in his interesting Memoir on the Diseases of the Spinal Chord; but M. Bouley was too rich in his own resources to require the help of a stranger. All that we wish to state now is, the priority of claim that we have on this important subject. One may be convinced by consulting the accounts rendered of the school at Alfort, that, since the period signalized by Guersent, we have not ceased to call the attention of veterinarians to the diseases of the spinal marrow. But to return: on considering the phenomena which camphor produces on the animal frame, and knowing that it causes, in a large dose, instant death, and that

the disturbances which it causes shew themselves in convulsive, sudden, and rapid motions, and which are very analogous to those produced by an electric shock, without leaving any of the remarkable lesions in the tissues, except an alteration of the blood and the presence of an elastic fluid in the vessels of the base of the brain, and near the origin of the eighth pair of nerves; alterations observed equally in the epizootics of 1795 and 1814. The reconciliation of these things, appears to us to be of the highest importance, in order to clear up the nature and causes of these diseases.

Miscellanea.

List of Veterinary Surgeons actually serving in Regiments, April 1831.

Names.	*Regiments.*	*Date of Commission.*
W. Percivall . .	1st Life Guards	Nov. 12, 1812.
John Field . . .	2d Ditto . . .	Jan. 31, 1805.
J. Siddall . . .	Horse Guards .	Oct. 10, 1812.
J. Mellows . . .	1st DragoonGuards	Nov. 6, 1801.
W. Woodman . .	2d Ditto . . .	Feb. 25, 1813.
T. Rose	3d Ditto . . .	Jan. 5, 1809.
J. Rainsford . .	4th Ditto . .	Dec. 25, 1828.
J. Constant . .	5th Ditto . .	March 3, 1814.
J. Hayward . .	6th Ditto . .	April 29, 1813.
J. Schroeder . .	7th Ditto . .	June 25, 1812.
J. Green . . .	1st Dragoons .	Feb. 8, 1831.
G. Watts . . .	2d Ditto . . .	May 11, 1826.
J. W. Lowes . .	3d Ditto . . .	Dec. 14, 1826.
Isaac . .	4th Ditto . .	Feb. 17, 1825.
H. Haller . . .	6th Ditto . .	Aug. 3, 1830.
G. Edlin	7th Ditto . .	Dec. 17, 1829.
L. Bird	8th Ditto . .	June 29, 1809.
J. Robertson . .	9th Ditto . .	Sept. 24, 1829.
H. C. Sannemann .	10th Ditto . .	Dec. 7, 1809.
E. F. Cherry . .	11th Ditto . .	Jan. 21, 1830.
J. Castley . . .	12th Ditto . .	June 18, 1807.
J. Legrew . . .	13th Ditto . .	July 9, 1830.
Alex. Black . .	14th Ditto . .	Nov. 10, 1814.
H. Hogreve . .	15th Ditto . .	July 12, 1806.
G. Spencer . . .	16th Ditto . .	March 25, 1819.
J. Wilkinson . .	17th Ditto . .	April 27, 1826.

Method of treating the Sore Backs of Horses near the Missisippi.

Our horses' backs had been chafed by the saddles, notwithstanding all the care taken to keep them in a sound state, which was dictated, not only by humanity, but also by a provident attention to our own interest; for very little experience is required to satisfy a traveller that much of his comfort and expedition, in such a journey as our's, depends on the circumstance of his horse's back not being galled, as it otherwise torments and tires the animal before he has performed much work. For the information of other travellers we may mention that, after having tried many applications, we found none to succeed so well as white lead moistened in milk: whenever the application was made in the early stage of the wound, we have found this to be very effectual. As long as this could be procured, we used it. After we left the settlement, sweet oil was used as a substitute for milk. It is a convenient thing to carry on an expedition, as a couple of ounces of white lead sufficed for the whole of our party during more than a month.—*Keating's Expedition to the Source of St. Peter's River*, p. 190.

Docking Horses.

Horses kept for riding are adorned with a long bushy tail, which increases their beauty and value. Even the meanest negro slave would think it an indignity and a punishment, were he ordered to ride a horse deprived of its tail. The Indians think we are jesting when they hear us say, that in Europe there exist men who cut off the tails of their horses, and reckon it an improvement; for they think that a handsome tail is not only a great ornament to a horse, but likewise his instrument of defence with which he drives away the swarms of flies and gnats.

To mutilate the tail of another person's horse, is a bitter and not uncommon kind of revenge amongst the lower orders of Indians; and it is also thought an insufferable insult for one man to call another *un rabon*, i. e. a horse without a tail.

Dobrierhoffer's Account of the Abipones, vol. i, p. 232.

Attachment of Animals.

Grief works in a lively manner upon animals. I knew a dog that died for the loss of its master, and a bullfinch that abstained from singing ten entire months, on account of the absence of its mistress, and on her return resumed its song. Lord Kaimes relates an instance of a canary which, in singing to his mate, hatching her eggs in a cage, fell dead. The female quitted her nest, and, finding him dead, rejected all food, and died by his side. Homer is not so extravagant as some may be inclined to

esteem him, when he makes the proud horses of Achilles weep for the loss of their master; for horses can regret, and their countenances often exhibit evident marks of melancholy.—*Beauties, Harmonies, and Sublimities of Nature*, vol. iii, p. 36.

Hogs fond of Music.

Hogs are attended by Indians with every possible care. There is a cold bath on the premises which they were obliged frequently to use, as cleanliness is considered essential to their acquiring that enormous load of fat from which their principal profit is derived. Their ease and comfort seem also in every respect to be studiously attended to; and the occupation of two Indian lads will cause a smile on the countenances of my musical readers, when they are informed that they are employed from morning till night in settling any disputes or bickerings that may arise among the happy inhabitants of this community, either in respect to rank or condition, and in singing them to sleep. The boys are chosen for the strength of their lungs, and their taste and judgment in delighting the ears and lulling the senses of this amiable harmonic society: they succeed each other in chaunting during the whole day, to the great delight and gratification of their bristly audience, who seem fully to appreciate the merits of the performers.—*Bullock's Mexico*, vol. i, p. 251.

Horse-baiting.

Fortunately for the character of our country, I met with but one solitary instance of the deliberate torture of that useful and excellent animal the horse, and that occurred in April 1682. Notice was given in the papers, that on the 12th of April, a horse of uncommon strength, and between eighteen and nineteen hands high, would be baited to death at his Majesty's Bear Garden, at the Hope, on the Bankside, for the amusement of the Morocco ambassador, and any nobility who knew the horse, or would pay the price of admission. It seems that this animal originally belonged to the Earl of Rochester, and, being of a ferocious disposition, had killed several of his brethren, for which misdeeds he was sold to the Earl of Dorchester, and in his service committed several similar offences; he was then transferred to the worse than savages who kept the Bear Garden. On the day appointed, several dogs were set on the vindictive steed, which he destroyed or drove from the area. At this instant his owners determined to preserve him for a future day's sport, and directed a person to lead him away; but before the horse had reached London Bridge, the spectators demanded the fulfilment of the promise of baiting him to death, and began to destroy the building. To conclude; the poor beast was brought back, and other

dogs set upon him without effect, when he was stabbed to death with a sword.—*Malcolm's Anecdotes of London.*

Sagacity and Affection of a Cow.

On Thursday last, R. Williams, Esq. residing at Wolvercote, in the neighbourhood of Oxford, ordered his bailiff to go into a certain field to drive out some cattle. On the man's entering the field, a cow flew at him furiously, which so alarmed him, he fled. The cow then stopped, and bellowed loud and piteously, as if anxious to gain his attention. On the man taking particular notice of her, she went to a ditch, when she both looked and bellowed so piteously, that he was induced to follow her: when he arrived there, he found her calf on its back, almost lifeless from its ineffectual struggles to regain a standing position. He relieved the poor animal just in time to save its life, on which the grateful mother jumped and fondled round him with all the playful fondness of a dog, frequently licking his hands; and on all occasions since she has taken particular notice of the preserver of her offspring.—*Morning Herald, September* 18, 1829.

The Flea-bitten Gelding.

He was the property of Hanks, a horse-dealer in St. Giles's, a name that, in consequence, ought to be held in utter detestation. The horse generally ran his matches on the Romford road. Being matched to run 21, 22, and 23 miles within the hour, I understand he twice accomplished the 22; and was, lastly, matched against a well-bred racing pony, to run over the Epsom road so many miles out, and then to turn and run in. It seems the boy who rode the gelding, although used both to the horse and the road, made the strange blunder of taking a wrong turning and losing a quarter of a mile of ground, which it was impossible for him to recover. In the attempt, and when failing and nearly exhausted, the unfortunate animal was spurred, whipped, and beaten on both sides and behind, by a band of infernal miscreants on horseback interested in the race, until his very entrails trailed after him; when he made one last and desperate effort, rearing up on his hinder legs to the very utmost extent of his height, and then fell down heart-broken, and died.—*Sporting Mag. Nov.* 1822.

Value of Horseshoes.

"Most of the houses in the west end of London," says Aubrey, "have horseshoes on the threshold." The horseshoe, it seems, lost its virtue if purchased or received as a gift: it should be accidentally found, to prevent the operations of witches on the houses under its protection.—*Malcolm's Anecdotes of London,* p. 372.

THE

VETERINARIAN.

VOL. IV. JUNE, 1831. No. 42.

Communications and Cases.

Ars veterinaria post medicinam secunda est.—VEGETIUS.

PRACTICAL OBSERVATIONS RELATIVE TO STABLE DUTIES AND THE GENERAL CARE OF HORSES.

By Mr. J. CASTLEY, *V. S.* 12*th Lancers.*

THE following remarks are abstracted from notes put down at different times, and may therefore be said to result from a long and frequent experience of those evils of which they complain. They will apply, if not equally, at least I think I may venture to assert *more or less*, to every cavalry regiment in the service. They embrace several points which are but seldom noticed, because perhaps they are generally considered trivial or *unimportant*. A close attention however to the practices and the occasional mischief they give rise to, has convinced me that we ought never to be indifferent to any, even the most minute details of stable economy. It is our duty, be it always recollected, to be observant of every thing connected with the health and right management of the horse.

Although we have something like a regular and uniform system of stable duties established and carried on throughout the whole of the British cavalry, and although in general this system may be considered as excellent, yet I have observed many practices amongst dragoons which I could wish to see corrected or abolished; and there are many points to which I would call the attention of the non-commissioned officers in particular.

I. Every person intrusted with the care of horses should, I think, know something of the principles of ventilation.

Ventilation may be said to consist in the removal of foul or too frequently respired air from a stable or from any other apartment; and in the introduction at the same time of a fresh supply, so as to insure a healthy atmosphere within for animals to breathe; and this should be effected, if possible, without creating any great current or draft. The admission of air should be gradual and continuous, rather than excessive. To this end apertures are made,

and means are provided in all the barrack stables, which may be regulated or modified at discretion. The degree of ventilation will depend on various circumstances, as the size of a stable, the number of horses it contains, the state of the weather, the season of the year; all of which should be taken into consideration.

The holes we see perforated at the top or upper part of each stable, are for the purpose of allowing the foul air to escape; which being heated, and consequently lighter, naturally ascends to the top, and can only be let out by apertures situated at that part. It is not perhaps necessary that these openings should be large, for that, on many occasions, would create too great a draft; but they never ought on any account to be altogether closed.

In most barrack stables we find considerable spaces left at the bottoms of the doors and between them (the doors being generally cut into two parts); these openings may, in many instances, where there are not a great number of horses in a stable, and in the winter season, be generally sufficient for the admission of an adequate supply of fresh air. But in large stables, and in crowded situations, other and more extensive means of ventilation must be had recourse to. The shutters over the stable doors are placed, in a great measure, at the discretion of the non-commissioned officers, who should open them partially or altogether as they may see occasion. In the summer it will often be proper not only to leave the windows open, but even the top doors also in very hot weather.

In general, however, ventilation is better carried on by means of small rather than by large apertures; and except in warm weather, such openings as will allow any great draft or current of wind should be avoided. Changes from one extreme to another ought always to be guarded against, and one uniform temperature should be preserved as much as possible in a stable: for this reason, the habit so common amongst dragoons of throwing open all the doors whenever they go to stables, and of keeping them generally wide open during the whole of the stable hour, is not only a slovenly practice, but one likely to be productive of much mischief; and its bad effects are more especially felt, or to be apprehended, during the time the horses are being watered.

Most barrack stables have two large doors, situated exactly opposite to each other, in the most favourable position possible for a current of wind. Now it must, I think, be perfectly obvious to any one who will give this matter the least consideration, that introducing a large quantity of cold water into the stomach and bowels of a horse, and at the same time applying a strong current of cold air to his naked body, must be likely means to cause a sudden chill, and to be productive of much mischief. We see it

almost constantly attended with staring of the coat, often with a shivering fit, and sometimes with consequences still more serious. In cold weather the non-commissioned officers should be careful to keep the doors shut, at all events one door, during the stable hour, and more particularly whilst they are watering the horses; a precaution which would effectually check any great current of wind, and they would find it would tend very much to the good condition and kindly appearance of their horses' coats. The practice of leaving the doors open during the stable hour is, I am convinced, a mere habit; there can be no necessity for it, and, with a little perseverance on the part of the non-commissioned officers, it might, I think, be corrected.

The men seeing their horses' coats staring, without reflecting as to the cause, naturally enough conclude they are kept too cold, and then they are very apt to fly to the opposite extreme; for when they leave stables they seem to think they can never shut them up close enough: then, if left to themselves, they would not only block the bottoms of the doors, but stop up every hole and every crevice in such a manner as to prevent the possibility of any air whatever entering the stable. The pernicious consequence of this practice is most to be apprehended during the night, when horses are shut up for so many hours together; when, being denied a supply of fresh air, they are obliged to breathe that which was shut up with them in the stable over and over again, until, its vital principle being exhausted, it becomes noxious and unfit for the purposes of life. Besides the mischief likely to accrue from forcing horses to live in a vitiated atmosphere, there is also to be taken into consideration the violent change, in regard to temperature, to which they are subjected by such inconsiderate treatment. Dragoons in this respect seem to act with the greatest inconsistency: at one time they are unnecessarily exposing their horses to all the vicissitudes of a changeable climate; and at another they would shut them up so close, as at once almost to suffocate them with heat and impure air. The men wish to see their horses' coats look smooth and well, but this object they would be much more likely to attain by preserving a moderate and more uniform temperature in the stable; carefully keeping the doors shut in the daytime, and allowing a free ventilation in them during the night.

II. When the horses are taken out to exercise, or to water in the morning, nothing is more common than to see the stable doors left open; and as there are usually two or three left in in each stable, these are often exposed to a bleak current of wind blowing upon them until the rest return. The stable man, if

there be one left in, should be warned to be particular in keeping the doors shut whilst the troops are out at exercise.

III. Again, when horses are brought in sweating from any considerable exertion either in the riding school or field, we frequently see the doors left open whilst they are in this state, by which, at some seasons of the year, they are subjected to a sudden chill and all the consequences of checked perspiration. Horses whilst heated should not be exposed to a cold current of air, but should be allowed to cool gradually and by degrees.

IV. Some horses will eat their corn so much faster than others, that if no precaution be taken to prevent it, they will always get more than their own allowance, to the detriment of their neighbours. The non-commissioned officers should take notice of this, and never allow a slow and a greedy feeder to stand together. Greedy feeders are also apt to get into the habit of swallowing their corn whole, not giving themselves sufficient time to masticate it: this circumstance should also be noticed, with a view to its being corrected.

V. When horses are observed to look dull, to refuse their food, or shew any signs of illness, they should be reported immediately; for, in many instances, to detect disease in its infancy is to save the life of the animal. And it is a good practice, whenever a horse is thought at all unwell, to separate him from the rest, to place him in a corner by himself, and stop his corn; a precaution which will often prevent consequences more serious, and never ought to be neglected, more especially at an out-quarter.

VI. Whenever a horse is sent into the hospital stable, the man who rides or owns him should also, if possible, be sent with him; he will feel more interest in the recovery of the animal, and be more attentive to him than any other person. Instead of this, I have observed it is customary to pick out the most useless or least trusty man in the troop to attend the hospital stable; or else they make a fatigue duty of it, sending perhaps a fresh man every stable hour, who naturally gets through it in a hurried and careless manner. But the worst of this practice is, that the fresh man, not knowing any directions previously given, is very apt to get wrong with regard to feeding, &c. and in this way liable to do harm; so that, under circumstances where the animal requires the greatest degree of care and attention, he is often most neglected. When a horse is sick, the non-commissioned officers in general appear to think they have no longer any responsibility, and seem to abandon the animal, as it were, to his fate. As long as they make this a fatigue duty, so long, I will venture to say, will it continue to be done in a loose and unsatisfactory manner.

If the dragoon cannot be spared to take care of his own horse, some steady trustworthy man should be selected from the troop for this purpose, and not be changed, except as little as possible, all the time the animal remains in the hospital stable.

VII. Not only every non-commissioned officer, but every dragoon should know how to treat a horse whilst he is in physic; yet how often do we see the grossest errors committed by both! For instance, I have frequently known them throw a feed of corn before the animal during the time his physic was in active operation. No man, surely, can be so ignorant as not to know that under such circumstances it must be highly improper to give corn. Horses should always have plenty of water to drink whilst in physic, and, if it be brought from a very cold spring, it should have the chill taken off, by adding warm to it, or, what is perhaps better, it may be allowed to stand in the stable some time before given. When a horse is taken out to exercise in order to make his physic operate, his skin should be kept warm: he may be covered with a blanket; and when the physic begins to operate freely, he should be taken in immediately, and left quiet until it sets again. Under these circumstances too much exercise would be apt to induce superpurgation, which sometimes terminates in inflammation of the bowels and death.

VIII. The young horses should not be mixed up with the old ones at joining: they should be kept separate, and not so highly fed as the rest, at least for some time, until sufficiently seasoned: they will frequently be ill, or want physic, and at such times they ought to be allowed little or no corn. In their usual feed they should have at least one bran mash every day, made very sloppy: the evening is perhaps the best time for this feed. They ought to be kept in a well ventilated stable, and to have plenty of walking exercise: the exercise they generally get in the riding school, especially during the period of lunging, is scarcely sufficient to keep them in health.

IX. Troop horses are liable to get into many bad habits; a very common and troublesome one is that of kicking in the stable against the wall, the post, or the bail, by which they are apt to disfigure and lame themselves. Capped hocks and callous enlargements of the legs are frequent consequences of this practice, which may be generally checked or cured if taken at the commencement. When allowed, however, to go on unheeded for any length of time, it becomes a confirmed vice. The non-commissioned officers must therefore be attentive to correct this evil at the beginning, and take prompt measures to put a stop to it. Whenever they find a horse has been kicking during the night, they should have him immediately removed

into a new situation: he should be placed by himself if possible, or in a corner next to a quiet horse, and watched. Many horses, more especially mares, will kick when in contact with others, who will be quiet enough when placed by themselves. This precaution, together with that of nailing a thorn or a whin-bush against the wall, or the side of the post, will generally be sufficient to check or correct this evil in its infancy; but when it has once become a confirmed habit, nothing will perhaps be of any use, in the way of prevention, but a log, fastened upon one of the hind legs; or what is nearly the same, a certain length of chain attached by means of a buckle and strap, and which, by striking the other leg in the act of kicking, frightens the animal and makes him desist. Logs may be made of different lengths, according to the part of the limb to which they are to be affixed. If buckled above the hock, which is generally the most effectual, the log ought to hang down to the lower part of the shank-bone, and should be of a long or oval form: if fastened to the middle of the leg, the lower part of the log should touch the top of the hoof, and it is better to be of a round form. Every troop sergeant-major should always have, at least, two of each sort in his possession, ready for use on any occasion.

I shall say nothing here of the vicious propensity of kicking at the trooper, a frequent complaint amongst troop horses, nor of the mode of prevention I would recommend; that being a matter more within the province of the riding master than the veterinary surgeon. But I am persuaded there are many troublesome and vexatious habits that horses acquire, which may, in a great measure, be prevented by a little care and perseverance on the part of those who have charge of them: for instance, if there be any cribbiters or wind-suckers in a troop, they ought, as much as possible, to be kept separated from the rest, because it is well known horses often learn these *tricks* from each other; and the precaution is easy—it requires only a little care and attention. Another, although a minor, yet a troublesome habit enough, is that of slipping the collar in the stable. Some horses will get into the way of doing this so dexterously, as to be constantly found loose amongst the rest, a source of much mischief often in a troop stable: the non-commissioned officers should always therefore take care to have a horse of this sort properly secured;—a broad strap made to buckle round the neck is the best means. Each troop sergeant-major should be provided with three or four of these neck-straps, which may answer equally both for this purpose, and to prevent cribbiting.

X. Formerly it was a common practice to strip horses immediately on their coming in, and, whilst sweating from any great

or considerable exertion, to tie them outside of the stable door, and begin by washing their legs with cold water. The folly of such a practice, to say the least of it, must be too apparent to any one to need any comment. It may not be so injurious in the summer as in the winter season, but it ought to be discontinued at all times, as a bad and slovenly habit.

XI. Cleanliness is a matter of much importance, and should always be attended to in a stable. It is a good practice to have all the racks and mangers, and the spaces in front of the horses' heads, washed once a week; this may be done any morning most convenient whilst the horses are out at exercise. The mangers should also be carefully looked to, and at all times kept clean.

XII. The non-commissioned officers should be particular in seeing their horses' feet properly stopped; this is often done in such a careless and slovenly manner, as to be of little or no use. During the summer months, the more frequently moisture is applied to the hoofs the better, and it is a good practice to stop the feet every night; but in the winter, every second night will be sufficient: always, however, the evening both before and after new shoeing.

A CASE OF ABSCESS IN THE LIVER OF A COW.

By Mr. Samuel Goodworth, *V. S., Howden.*

A Cow, the property of a neighbour, had calved and done well. She was milked twice a day, and appeared in good health for six weeks; when the maid going to milk her in the morning, found her very uneasy and evidently ill. She informed her master, and he, thinking there was considerable inflammation, opened each jugular vein, and she bled freely. He then sent to a druggist's shop for medicine, but before the messenger returned, although absent only a few minutes, the cow was dead; and I was sent for to examine her.

On opening the body, I found all the abdominal viscera in perfect health, except the liver, the right side of which was very much enlarged. I made an incision into it, and was surprised to see escape a stream of matter the consistence and colour of cream, and as much of it as would have filled a quart pot.

On examining the thorax, I found a little of the same sort of fluid in the lungs: the heart and its membranes were in a healthy state.

A REPLY TO MR. C. CLARK ON THE DISCOVERY OF THE EXPANSION OF THE HORSE'S FOOT.

By Mr. B. HART, *Zootrist.*

I hate the man that builds his fame
On ruins of another's name. GAY.

To the Editors of "The Veterinarian."

Gentlemen,

I AM induced to offer some remarks on a paper in your last Journal, in consequence of observing that it is intended and calculated to deprive departed worth of its just merits, so very ably pourtrayed in a work on the horse's foot, the labours of the late Strickland Freeman, Esq., a true friend, and arduously devoted to the improvement of the veterinary art. It is a task I have already undertaken in the LANCET; and I can now only add that I am at all times ready, determined, and fully prepared, to come forward as the advocate of so ardent a supporter of truth and science as this gentleman was, let whoever will attempt to conspire against his fame and labours, or grovellingly decry their value, even if he assume the garb and character of *a quack*.

That part which I have principally and first to deal with in substance is nearly as follows, page 251, "that some person, who became acquainted with the expansion of the foot by and through the means of Mr. Clark, has found out and published some detached passages in the work of Mr. Strickland Freeman, an amateur writer, which seem to shew that he had some *obscure* and *ill-understood* views respecting the 'spring of the foot,' as he terms it. I say they were ill-understood, because his ideas were not at all settled or consistent, and he recommended the common shoe nailed on both sides, and did not see the evil of it; and it is evident they were obscure, since no man, whether writer or practitioner, was ever convinced of the expansion of the foot by reading his book, though it has been before them for thirty years. During that time, amidst all that has been advanced and written on the subject, no one has declared that he learnt any thing from Mr. Freeman's book, or was led to see the necessity of expansion shoeing in consequence. It was inconsistent and unintelligible, and conveyed no meaning to any body, until Mr. Bracy Clark explained the whole upon principle; and it is only within the last twelvemonth that any merit has been claimed for Mr. Freeman, or that his name has been

brought forward." As this *claim-all* correspondent of yours does not favour us with the name, or inform us who this said person is, or where the detached passages are to be found, we must, as a matter of course, take it for granted that they are not of any sort of importance, and I presume therefore they can only have appeared in some very obscure publication, and thus have escaped my notice.

But I happen, on more than one occasion, to have published some strictures on Mr. B. Clark's pretensions to the merit and originality of the discovery of the expansion of the horse's foot, in the *Lancet*, No. 361, July 31st last; and subsequently, in No. 373, a complete refutation of his *claim-all* imported prodigy's attempt to prove the contrary, a step I felt particularly called on to take after the review which appeared in the *Lancet*, and a re-publication of Mr. B. Clark's book, without any notice whatever of Mr. Freeman's valuable labours, or giving him the least possible credit for his knowledge of the expansion of the foot; and, will you believe me, gentlemen, even after he had admitted to me, in the hearing of his prodigy, that if Mr. Freeman's work was authentic, he was well acquainted with the expansion of the hoof, and fully entitled to the merit of it.

Now as I am entirely at variance with Mr. B. Clark as to the action of the hoof, by contending that it is not *constructed like a bow*, or the frog or *bow-string*, and that Mr. Freeman's description is a true one, I have not, of course, derived my information from Mr. B. Clark, but from Mr. Freeman, and that many years ago; but I have waited patiently until a re-publication of the former's work appeared, and in the mean time also taken the precaution of laying a copy of Mr. Freeman's before him, that he might not plead ignorance of it, well knowing the sale has been extremely limited, and that very few, even veterinary practitioners, had ever seen or heard of it. I will now proceed to examine into Mr. Freeman's *obscure* notions and *ill-understood views* of the expansion of the horse's foot, as your *claim-all* correspondent has chosen to call them, and alas, for him! for with his own words will I convict him, and prove him in that situation he fain would have us believe he has placed Mr. Freeman,—on the wrong side of the post; for of all the writers with which I am acquainted, the late Mr. Freeman has the most clearly, truly, and accurately described the real action of the horse's foot; while, on the contrary, Mr. B. Clark has very frequently bogled, mystified, and confused, what he principally and uncandidly has been borrowing from others. At page 101, says Mr. Freeman,—"If the foot of a cloven footed animal—a goat for instance—were to be covered with a flat piece of iron, with the sharpest spikes made to

it, I much doubt whether it would be able to stand on those pinnacles of a slippery mountain, which the power of *expansion* in its hoof enables it to embrace. *A horse may be said to have a foot half cloven, that is to say, a foot having the power of expansion at the clefts of the heel, but confined at the toe.*" Here, then, I believe it next to impossible for any one to describe the real action of the horse's foot in a clearer manner than this, or sum it up in much fewer words; but I will just contrast our *claim-all* hero's opinion with it, in order to let your readers see his folly in contradicting himself, and then proceed to see how far his description agrees with that which Mr. B. Clark has promulgated, and which he also professes to advocate.

From the *Lancet*, No. 283, January 31, 1829, "They are not aware, or they do not know, it appears, that the foot being fairly cleft beyond its centre to within an inch and a half of the toe, leaving a triangular space which is occupied by the yielding elastic frog, opens from the front as from a hinge; and that as to the expansion of the foot so much spoken of, it can never take place unless the toe, nay, the whole foot, is at liberty. Elasticity is therefore, in some respects, a bad word, since it is not wholly soft materials, but a cleft-divided foot, which must expand by halves, like the cow's foot, as it were, or not at all. It might just as well and as truly be maintained that the hoof of a cow, or any other cloven-footed animal, does not open at all at the toe, because the joint is situated behind, at the heel; or that a door opens not at the latch, but only at the hinges."

The intimate connexion of these descriptions is so very obvious, and must appear so clear to your readers, as to render even a single comment at present superfluous; I shall therefore reserve what I have to advance on this point, and the cause that led to its appearance, for a future opportunity; but just remark, that as your correspondent once called in the name of Milton, as he thought at the time to help him on a bit, though it proved a fault, I will therefore now try if I cannot turn him to some advantage, by quoting a line or two a little to my point:—

> "So spake the false dissembler, unperceived;
> For neither man nor angel can discern
> Hypocrisy, the only evil that walks
> Invisible, through heav'n and earth."

Mr. B. Clark has laid it down, that the horse's hoof is formed on the principle of a *bow*, that the frog is like India rubber, and that it is the passive *bow-string* of the bow of the hoof; and on the strength of it has quartered an escutcheon with a bow and arrow, and adopted Constantine's the Great, and the mighty Knight Templar's of old motto, *In hoc signo vinces*. Now I am

ready at all times to meet this absurd doctrine, to contend against it openly, and prove its fallacy; for, if I know any thing about the matter, the natural tendency of the hoof is to collapse, and that it requires force and weight to expand it; but as in fully shewing the errors of the *bow system*, many more which Mr. B. Clark has fallen into would immediately spring up, and occupy, I fear, a larger portion of your Journal than I could venture to expect, I must therefore, on this occasion, refrain from entering into this part of the subject, with many important points of Mr. Freeman's, but shall be happy to do so in another paper, at an early opportunity; and I have also a few by-words and comments to advance on side-nailing, which I find is not quite so modern as some persons wish it to be.

As to Mr. Freeman's not clearly understanding what he wrote, and that he was not acquainted with the subject, is all downright misrepresentation; I positively deny it, and firmly maintain to the contrary; and further, I assert that since Mr. Freeman's valuable work appeared so ably explaining the expansive action—a work which every practitioner ought to closely study that wishes to become acquainted with the true action of the horse's foot—it has been noticed by Mr. R. Lawrence, and others. It may perhaps be asked, if Mr. B. Clark has done nothing in the affair; to which I most readily answer, that I should be extremely sorry to deprive any man of a single merit, or of any of his just deserts, on any grounds or pretensions whatever; and therefore, as St. Paul says, "behold I shew you a mystery;" and I assure you it is one that shall not soon or easily be changed. Mr. B. Clark, by much study, learning, and ingenuity, has clapped on *an old French jointed shoe*, delineated, perhaps, first in this country by Blundevill, and afterwards by the Duke of Newcastle, and Sainbel the first Professor at the Veterinary College, (it is also to be seen represented in the works of Gueriniere, and others), on Mr. Freeman's clear, beautiful, and simple description of the expansion of the foot: but all apparently without understanding it, as the *bow* and *string* concern, more particularly, and nearly the whole of his writings, clearly evince. This old rivet-jointed shoe, after various improvements through the aid of the malleable cast iron process, the principal knowledge of which was derived from the labours and experience of Mr. Goodwin, Sen., but the credit for which, I believe, has never been given him, has brought forth the present expansion shoe, as it is called. I cannot make more or less than this of it: others, possibly, if *well paid*, might swell out the account to pages; but, after all, it must again come to this, say what they will.

I was on the eve of expressing my astonishment at the assurance and assertions we sometimes meet with, and made by

writers; but my recollection prompted me that Mr. B. Clark has somewhere informed us that he sent across the wide Atlantic ocean for a helpmate in his great undertakings; this then being the case, if we make the usual allowance for the conceit met with in those who fancy no one can or is equal to compete with them, and throw in the additional motives when employed expressly for the purpose, we must all cease to marvel; for do we not find that there is no cause, be it ever so bad, but an advocate can easily be found to defend it; ay, even of the worst description at the Old Bailey! I remain, Gentlemen,

Your's, obliged, &c.

B. HART.

May 14, 1831.

CASE OF PHRENITIS IN A COW; AND CURIOUS TREATMENT OF HERNIA IN A MARE.

By Mr. PROCTOR, *Solihull.*

A cow, four years old, the property of Mr. Whitting, was seized with inflammation of the brain on the 9th of May. I saw her at eleven o'clock at night, and learned that she had been dull and unwell for the two preceding days.

Symptoms.—Considerable beating of the temporal and carotid arteries; costiveness; the urine small in quantity; inability to hold her head up, except that at times she would dash her head about, and against the wall; frequently resting her head hard on the manger; total loss of sight of the off eye, and both appearing much affected; the front and back of the head extremely hot, while sometimes the horns and ears would be intensely cold; a jerking and snatching commencing in the head and neck, and extending thence over the body; respiration much disturbed; great flow of frothy saliva from the mouth, accompanied with grinding of the teeth; refusal to eat or drink, although tried in many ways. I bled her copiously that night, and gave her one pound of Epsom salts and two ounces of nitre, in a large quantity of warm water.

10*th.*—No better. I inserted a large seton on each side of the head, blistered the front and back of the head, and gave an ounce of aloes in solution. At night she had eight ounces of Epsom salts and two drachms of aloes. I stimulated the spine of the neck, and ordered plenty of gruel and warm water. No appetite.

11*th.*—Not much better: the setons and blisters act well; bowels slightly opened; urine in small quantities and almost like blood. I bled largely, and gave an ounce of aloes and a drachm of digitalis in solution.

12*th*.—A great deal better; eats a little; holds her head up; takes notice of surrounding objects; every bad symptom leaving her. I gave eight ounces of Epsom salts morning and evening.

13*th*.—Mending apace.

14*th*.—Seemingly recovered; but I ordered the setons to be kept for another week.

What will not inexperienced persons do? A gentleman in our neighbourhood had a mare which foaled about a week ago. Some time before she foaled she had, as he thought, a swelling along the belly and the groin.

The owner put a rowel in her brisket, which took away the swelling along the belly, but that at the groin remained undiminished: he then inserted another in the groin. Three days ago he requested me to see her, when upon examining her I found the swelling, as it was called, to be a large hernial sac. I immediately removed the rowel, when it appeared evident that mortification was taking place: an immense quantity of yellow stinking serum flowed from the abdominal cavity through the orifice made by the rowel. She was evidently in great agony. The intestine might be both seen and felt, and it was very dark coloured. She died this morning.

May 18, 1831.

QUERIES RESPECTING CATTLE, &c.

The following Circular has, ere this, reached the majority of our veterinary readers; but lest some should have been unintentially passed over, we give it insertion in the present Number of our Journal. The queries relate to subjects of the highest moment, whether the interests of the agriculturist or the improvement of our profession are considered. If practitioners in the various parts of the kingdom will contribute the result of their experience in the breeding of cattle and sheep, and the nature, causes, and treatment of their diseases, a mass of information will be accumulated, absolutely invaluable, and, in fact, the foundation will be laid for a truly national work on a subject hitherto neglected, but of vital importance. Mr. Youatt most earnestly solicits the co-operation of his veterinary brethren; and pledges himself, that to every fellow labourer due and public acknowledgment shall be rendered. Breeders of cattle, and agriculturists generally, may render very considerable assistance, and for which the society, and the humble individual who has the honour to be employed by them in arranging this work, will be truly grateful. Two valuable communications are appended: they contain the kind of information which it is desirable to collect.—W. Y.

3, Nassau Street, Middlesex Hospital.

Dear Sir,

The Committee of the Society for Diffusion of Useful Knowledge, are desirous of obtaining information upon the following points.

Cattle.

1. What is the prevalent breed in your neighbourhood?
2. What attempts have been made at improving and crossing; and the success of those attempts?
3. What is their comparative value as milkers, or for the butcher?
4. How far are they used in husbandry labour?
5. To what diseases are they generally subject, particularly whether to redwater, blain, blood, hoose, diarrhœa, dropping after calving? What is the supposed cause of each, and what its treatment?

Sheep.

1. What is the general breed?
2. What crosses have been made?
3. What is their value, whether as it regards their flesh or wool.
4. To what diseases are they liable, particularly rot, here most especially; sturdy or hydatids—kind of sheep most liable—origin of the disease—foot rot, and whether infectious—scab?

Swine.

1. What the general breed?
2. In what are they valuable?
3. What are the diseases to which they are subject, and what the treatment adopted?

The Committee will feel obliged by your forwarding to me answers to these enquiries.

I am, dear Sir,
Your very obedient servant,
W. Youatt.

REPLIES TO QUERIES.

By Mr. George Farrow, *Ash, near Durham.*

The breed of cattle principally reared in the county of Durham, or in the neighbourhood in which I reside, are the short-horned, and generally receive the name of the Durham breed.

This breed, no doubt, originated from the short-horned; but, from a proper selection, they possess properties superior to the original. The points in which they are improved, are a disposition to remain in tolerable good condition during the time they are giving a large quantity of milk; and, when they become dry, fattening quickly. Another point in which they are improved is, a hardier constitution; and, having a thicker coat of hair, they are better able to resist the inclemency of the weather. The following points are in general considered requisite, and from these the improvement has been accomplished. The muzzle small and clean; forehead broad and flat, eyes prominent; the neck clean, with no appearance of loose and useless parts; chest wide and deep; loins wide, with a round or barrel-shaped carcass, and the back straight; legs clean and small; skin moderately thick, with a fine silky coat of hair, of a good thickness. The colour of this breed is various; those which are principally esteemed are spotted with red and white, and that variety of colour termed a roan: where, however, this selected and improved breed has been carried to excess, they have become considerably less procreative; and, in some instances, to such an excess has this been carried, that they have utterly refused to propagate their species any further. A gentleman in my neighbourhood bought an excellent high-bred bull to improve his stock; but to his great disappointment he never could obtain one single calf from this excellent beast. In the western parts of the county of Durham, where the land is not so good, and the situation more exposed, a breed is met with which is a cross from the short-horned and highland breed: about the third or fourth cross they become excellent for the richness of both milk and butter. They keep in good condition where the larger breed could not possibly thrive. Where the land is good, the Durham breed is peculiarly adapted to the dairy; yielding a larger quantity both of milk and butter: their value for the butcher is considered excellent; as, in general, they feed quickly, the meat tolerably fine in the grain, and weighing, upon an average, from forty to sixty stone (14lb. to the stone) and upwards. As to husbandry labour, I can say nothing; very few, if any, are ever employed at present in the county of Durham.

The diseases most incident to cattle in my neighbourhood, are red water, diarrhœa, and milk fever. Red water is a disease that occurs frequently in the months of May and June, and likewise about the latter end of September and beginning of October, and attacks cattle of every description. The farmers suppose that it arises from the animals eating or cropping the bushes, as it occurs principally in situations where large quantities of these exist; that they are of an acrid

and diuretic nature; and, by over-exerting the excretory vessels of the kidneys, they at length give way, and pass blood with the urine. From my experience, and inquiries into the subject, I am inclined to believe, in some degree, the truth of this assertion; but I consider this by no means to be the sole cause; for even under these circumstances, if the land lie dry, and in an elevated situation, it seldom occurs; but, on the contrary, I have remarked, that in valleys and situations placed remarkably low, and when the weather is changeable, i. e. the day warm and the night following frosty, or a heavy dew fall, cattle are certain to be attacked with it: for in such situations the dew always falls most copious, and the white or hoar frost is most severe. It is probable, however, that the winter's feeding and cold, and the eating of leaves, are the predisposing causes; that they so weaken the vessels of the kidneys, by throwing impurities upon them, as to render them too susceptible of being acted upon by the cold fogs and frosts. For after the perspirable vessels have been relaxed by the warmth of the day, the cold must necessarily make a sensible impression, and the blood must recede from the surface to the more internal parts: the vessels of the kidneys, being in a relaxed state, must suffer the most.

The usual treatment of this disease is a purgative of salts in combination with cordials and diuretics, whether the animal be costive or not. If the discharge continues after the purgative has operated, astringents and diuretics are given. I have succeeded best when I have given a purgative of salts and aloes, with tincture of opium and caraway seeds. If it does not operate at the usual time, one half of the salts and aloes were repeated every six hours. In some cases I have continued the exhibition of the medicine until five full doses have been administered. When the animal is in good condition, and the pulse quick and strong, I have bled with the very best effect: the blood in these cases is very tough and buffy. I have received benefit from the use of large plasters of pitch and a little tartarized antimony laid across the region of the kidneys. I have seldom any call for astringents in this disease.

Diarrhœa principally attacks young cattle and milch cows, and always proves fatal, unless it arises from the change of food; when it soon ceases after a little absorbent and astringent medicine. The chronic diarrhœa invariably wears the animal down, sooner or later, in spite of all means. I have examined many cattle that have died of this disease, and invariably found the liver diseased, the gall-bladder full of a thin watery bile, and the ducts of the liver full of flukes. I have occasionally found a deposition of serum in the cellular membrane, between the mus-

cular and mucous coats of the stomach: it is supposed to arise from the winter's cold and an insufficient quantity of food. The treatment, when any is attempted, is to give strong astringents with absorbent earths; but they rarely do good.

Milk fever is a very common disease in the summer season, or at any other time of the year when cows are in great condition at the time of calving, and when the udders have been full of milk for several days: in this state the milk cannot be drawn off, or only a small quantity at a time, and the animal is unable to rise. The treatment found most successful is to bleed largely, open the bowels with laxatives and clysters, and apply stimulating liniments over the loins.

REPLIES.

By Mr. C. Dickins, *Kimbolton.*

1. The Yorkshire cows are by far the most prevalent here.
2. The only cross we have of any consequence is from the Derby, by which means they get the stock heavier.
3. The York are generally preferred; for as milkers they find them keep their milk longer, and also get a more ready sale for them in the London mart.
4. But little used in husbandry.
5. The diseases they are generally subject to are, diarrhœa, dropping after calving, inflammatory fever, red water, and blain; but think the first more frequent than any.

Red water is a disease often produced a few miles from here, generally if the beasts are bought in and put on the woodland land, which would lead us to suppose that it was owing to some strong diuretic quality existing in the herbage. We generally subdue it by bleeding and Epsom salts. But you must indulge me with a little forbearance here, while I relate a story. A few years back there was a gentleman living in this county who was very celebrated for the cure of red water; and his son, a most respectable farmer, tells me the following was his never-failing recipe; bol. armenian ℥ii, a handful of salt, and a quart of strong decoction from the common nettle: of this he made a drink, which he used to sell for 2s. 6d.

Blain is rather an unfrequent disease in this part of the country, but when found is always in marshy lands. There is a peculiar sharp, broad-leaved grass found there, which the

farmers think produce it; but I should consider blain rather an effect than a disease.

Inflammatory fever not very frequent; the general causes I have found to be either over-driving, or from having been put into luxurious pasture. Treatment, bleeding and Epsom salts; sometimes using the digitalis.

Dropping after calving.—In this disease I have pursued the following treatment with great success: venesection, if the animal is in a state to bear it; then one drachm of calomel in thick gruel; and after the inflammatory action is over, I administer myrrh in ounce doses, which I prefer to all other tonics in this disease, considering it has a peculiar action on the uterus, giving a tone to the organ, and at the same time, by its antiseptic quality, prevents the putrefactive process from going on. There is another fatality that often proves a subject of great loss and vexation to the grazier, but which, although well deserving our attention, I believe has never been taken up by the professional man; viz. that of abortion a short time previous to the appointed time of calving. What is the cause? Does it arise from some vegetable matter acting too strongly on the uterus? it being a fact that some fields will generally produce it: if this be the case, we require the assistance of our botanical brethren to find out what the plant is, and by that means get rid of the cause. Secondly, it is well known that if one cow slips, and is turned amongst others, let the situation be where it will, there are generally others follow, as if it was owing to some contagious effluvia issuing from the parts after abortion. The best preventive I have found to be bleeding.

Diarrhœa.—This disease has been very prevalent in this neighbourhood this spring, and I have been tolerably successful in the treatment of it. I at first administered the various astringents, as creta, kino, opium, considering it to be a disease of the exhalent vessels or mucous coat of the intestines; but, much to my disappointment, I found little or no good effect from them, which led me to consider the liver as the organ primarily affected, secreting an unhealthy bile, and thereby producing a disordered action through the whole intestinal canal, as an effort of nature to throw something off offensive to the system. I therefore administered one drachm each of calomel and opium in some good thick gruel, which I consider of the greatest importance, acting as a sheath to the intestines, already under a state of excitement. I repeat this according to the size of the animal, and the violence of the disease; but I have rarely had to continue the dose more than

twice in the space of three or four days, continuing to give the gruel in the interval. But I ought to state, that if it is of recent date, or as Mr. Blaine terms acute, I always bleed; if of long standing, I have omitted bleeding.

SHEEP.

1. The general breed is the Leicester.
2. The only crosses of consequence from the Lincoln.
3. If for wool, the real Leicester is preferred, on account of its fineness; if for the butcher, with a cross from the Lincoln, being more weighty.
5. The diseases most frequent are rot, foot-rot, and scab.

Rot.—This has made a sad havoc this season; in fact, some farmers have lost all their flock, and none have escaped, not even farms which were never before known. For my opinions vide VETERINARIAN, November 1830.

The *Foot-rot* is not a very prevalent disease here; but I find from the conversation I have had with agriculturists, that they bear out the assertions of Professor Dick as to the cause; as a proof of which, I was talking to one of them the other day, and he told me that as soon as he discovered the appearance of it in his flock, he had them driven a good distance along the road every day, which always proved a preventive to the rest. The Professor labours hard to prove it not infectious but when we see it make its appearance in a flock where it has not been known for years, in a short time after the admission of a ram, it leaves us *doubtful.*

Scab.—The treatment of this disease here is the mercurial ointment; but I am inclined to think it would bend to milder remedies.

SWINE.

1. The general breed the Berkshire, or a cross from the Suffolk with them.

The lungs seem more disposed to take on a diseased action than any other organ in the pig, which here is generally termed husk, or rising of the lights; the best treatment for which I find venesection and soda sulph.: madder and sulphur is much used with many.

ON INFLAMMATION.

By T——.

THE arteries, or the vessels by which the blood is conveyed from the heart to the different parts of the frame, are said to be

composed of three membranes or coats. The outer one, with its matted fibres running in every direction, is highly elastic, that the vessel may always be open and the course of the blood unimpeded, and that the artery may accommodate itself to the changing quantity of blood which even in the healthy pulsation of the heart it must contain, and more especially when the force of that organ is materially increased or diminished by disease: that it may dilate when the current runs fuller and stronger, and contract to its natural calibre when the vital stream pauses in its course. This coat is thickest and strongest in the larger vessels, and in the neighbourhood of the heart; for there the percussive power of the heart is most felt, and the principle of elasticity, the essence of which is to yield to impression, but to return again to its former state when the disturbing force is removed, is most needed.

The central coat is muscular. Its fibres take a circular direction, and its office is to contract, when required, upon the blood, and assist its circulation. By it the calibre of the vessel may be lessened, as by the elastic coat it may be increased. It may assist the external coat when its elastic power has been impaired by too long and violent distention; while, on the other hand, the elastic coat will act as an antagonist muscle in restoring the calibre of the artery, after the muscular coat has contracted on its contents. The muscular layer is comparatively thin and powerless in the neighbourhood of the heart. It is not wanted there; for the forcing pump of life acts with sufficient energy to propel the current through the larger vessels: but, as the artery diminishes in calibre, and the course has been long and tortuous, and the resistance to the passage of the fluid, always considerable, is ever rapidly accumulating, and threatening, not merely to impede, but to arrest the current, the muscular coat acquires volume and strength, if not required to co-operate with the natural and healthy action of the heart, yet to be ready to lend its aid when the power of the grand engine is diminished, or circumstances require that assistance should be derived from other sources.

The internal coat, of a mingled composition between membrane and tendon, is smooth and polished, that the flow of the blood may not be obstructed: it is elastic, that it may adapt itself to the changing size of the vessel; and it is strong, to assist the natural action of the other two, and to preserve them from over-distention and rupture. The play of power between the three coats of the arteries is one of the most beautiful instances of contrivance that the animal frame affords.

It would appear from this account, that, in a state of health,

the arteries are curiously contrived tubes for the mechanical conveyance of the blood. The heart is the propelling power; the artery is the tube through which the fluid runs, little or not at all adding to the velocity of the current, but admirably constructed to remove every possible impediment to the stream, with intuitive skill to adapt itself to the variations of the current, and even with power to take up the action when the central machine is weakened or deranged.

The arteries, however, diminish in size as they recede from the heart, and they terminate in vessels as small as a hair, or not a thousandth part of the bulk of a hair. There are, through every assignable portion of the course of the arteries, myriads of these microscopic vessels given out to, and losing themselves in, the neighbouring parts, and in which the important functions of secretion and nutrition are performed. These are prolongations of the arteries; and the coats of the main vessel may still be traced so far, at least, as the power of vision, assisted by art, can reach; but with this difference, that the elastic coat is diminished in thickness and in power, and the muscular coat proportionably increased in bulk and strength. The reason of this is plain. The grand source of resistance to the passage of fluids through tubes, living or dead, is the attraction between the fluid and the wall or side of the tube; and this is powerful in the proportion which the internal surface of the tube bears to the quantity of fluid contained. In tubes that admit of mechanical admeasurement, the proportion of surface, and consequently the force of attraction most rapidly increase with the diminution of calibre, and in minute tubes every part of the fluid is within the sphere of attraction. Therefore it is, that, in capillary tubes, a fluid does not obey the strong power of gravitation, but rises in the vessel, and that in proportion to the smallness of the bore. The ratio has been accurately calculated, and the mechanical effect almost exceeds belief.

So, in the capillaries of the animal frame, when the whole of the fluid enclosed within these tubes feels the attractive force of the walls of the vessels, the power of the heart, like that of gravitation, is counteracted and unavailing. The heart has, and can have, nothing to do *directly* with the circulation of the blood through the capillaries; but another power is called into exercise, the muscular coat of the vessels, which was increasing with their diminution of size, and at length constitutes the main bulk of their parietes or coverings. The muscular coat is the grand agent here, and the elastic remains, although shrunk in bulk, to act as an antagonist to the muscular: so that, although the larger trunks may be considered as little more than mechani-

cal pipes, yet endowed with a wondrous power of self-adaptation, we find in the capillary tubes the true development of the principle of organic life.

These muscles are involuntary; and derive their power of action from the ganglial or organic nerves, with a mesh-work of which their coats are enveloped, and which, being first detected on the carotids and their branches, accompany all the arterial ramifications until they elude our power of observation.

As the healthy action of the muscles of voluntary motion seems to depend on the due and natural supply of nervous influence from the motor columns of the spinal cord, and a supply undue in quantity, and extending to many muscles, will produce violent and constant contraction of them under the form of tetanus,—and, still undue in quantity, but limited in extent, spasm of particular parts,—and irregular and general, as well as violent, epilepsy,—irregular and local, chorea,—and the total suspension of nervous influence, palsy; so an undue supply of energy from the ganglial system, directed to these organic muscles, will produce increased action of them, local or general, according as the supply of morbid energy is limited to a particular spot, or extends over considerable portions of the frame; and assuming the characters of local or general INFLAMMATION, inflammation of a part, or general fever.

The nature of inflammation is a most important subject, for inflammation constitutes the essence of many diseases; and it is either the cause, or the consequence, or the companion of every malady. A clear conception of its nature and character is absolutely necessary to the adoption of that prompt and straightforward treatment by which alone it can be subdued. There is no subject, however, which has been so unnecessarily and absurdly mystified. Few, indeed, have doubted that the capillaries are the original seat of the morbid action. They who have considered it to be primarily an affection of the heart or arteries have not been distinguished for the accuracy either of their physiology or their pathology. The most profound observers have assigned the capillaries as the birth-place of inflammatory action, although the arteries and the heart are, in the majority of cases, secondarily affected.

There has, however, been much and needless mystery attached to the primary affection of the capillary vessels. The grand error was a false apprehension of the state of these vessels and their contents. While it was allowed that more blood was determined to the inflamed part, it was imagined that it was detained there, and that the vessels were in a state of congestion. Boerhaave accounted for this congestion by the supposi-

tion of a change in the texture of the blood itself—it became thicker and viscid. Cullen imagined that there was spasm of the capillaries or their orifices. Allen adopted the Italian theory of increased determination of blood to the capillaries, and diminished action of these vessels on their contents, producing stagnation of the fluid which they contain. Dr. Philip supposes that the vessels are dilated, and, therefore, the velocity of their contents diminished. Dr. Thompson imagines that there may be alternations of increased and diminished velocity; and Dr. Hastings maintains that there is increased action of the larger arteries, while the capillaries are in their natural state. The oldest opinion, however, is the simplest and the best,—that inflammation is an increased action of the capillaries. Not only a determination of more blood to them, but the actual passage of more blood through them, and an increased discharge of all their functions.

From a blow, or wound, or change of temperature, or various other causes, the nervous fibrils supplying the capillaries of a greater or smaller portion of the frame, and on, sometimes, a minute and circumscribed spot, are irritated. They act more powerfully on the muscular coat of the vessel; and the consequence of this is, that the capillary contracts more powerfully on its contents, and it more perfectly empties itself, and drives the blood forward with increased velocity. The elastic coat, which forms the external covering of the capillary as well as the artery, being closely connected with the muscular, is contracted with it, contracted likewise beyond its usual limit. The contraction being performed, the muscle ceases to act, and then the elastic coat, obeying the law of elasticity, returns again to its former calibre, and with an increased force and velocity equal to the contraction of the muscle. It does more than this: the vibrating string proceeds beyond the point from which it at first started, and the elastic coat of the capillary expands beyond its natural calibre. There is thus rapidly formed, or would be formed, a vacuum, and of greater extent than usual; and, by a mechanical law,—by the pressure of the atmosphere,—by the *principle of derivation*, more blood is solicited, flows on, and flows on more rapidly, and fills the vessels, and the tubes which were previously enabled to carry red blood carry more, and those whose calibre would not before give passage to the red particles are dilated and carry red blood too; and so, as has been stated, not only more blood flows to the inflamed part, but through it. The proof of this is incontestible. If one limb only be inflamed, and a vein be opened in both the diseased limb and the sound one, and between the seat of inflammation

and the heart, and the orifice being of the same size in both, more than twice as much blood will be drawn from the inflamed limb in the same time as from the sound one, shewing that twice as much blood has traversed the vessels of that limb. The turgescence of the veins likewise between the inflamed part and the heart will sufficiently indicate that a greater quantity of blood than usual is passing through the vessels.

If more blood pass through the capillaries of the inflamed part, more must be supplied by the arteries; and therefore in the neighbourhood of the part they labour more to expedite the flow of blood; and the muscular coat in them also contracts more powerfully, and draws after it the elastic, and the elastic returns again to its former calibre, with a velocity and force equal to that of the contraction; and here too a vacuum is or would be more speedily formed, and to a greater extent, and more blood is solicited, or must flow on from the larger vessels beyond. On this account there is always increased throbbing of the arteries in the neighbourhood of the inflammation. Not increased frequency of pulse (the pulsation is synchronous with the beating of the heart), but altered character of the pulsation—increased fulness and hardness, proving that a greater quantity of blood is traversing the part. If the inflammation is circumscribed, or not intense, the increased quantity of blood permeating the vessels of the part is not great, and therefore the larger arteries, and at a distance from the inflamed part, are not perceptibly affected: but in more serious cases the labour exacted from the neighbouring vessels, to furnish the increased demand, is soon required from the yet larger vessels, and from the heart itself; and the heart begins to beat not only more forcibly, but more rapidly. The circulation through the whole of the frame is now affected, and symptomatic fever is the result.

It may not be uninteresting to compare this simple definition of inflammation "increased action of the capillaries," with the usual symptoms which indicate its presence. The first is *redness*, not indeed perceptible in every case of external inflammation in the domestic quadrupeds, for their skin is thick, and that skin is covered with hair; but there are in them portions of the frame in which this character of inflammation may be clearly enough perceived, either during life, or by post mortem examination. We judge of the violence of inflammation of the eye by the redness of the conjunctiva, and of the repiratory passages and organs by the redness of the continuous membrane of the nose. In the lungs, the stomach, and the intestines, we regard the injection of the vessels and the colour of the parts as indications of the nature and the intensity of the disease.

Will congestion of the vessels, or the retarded progress of the blood account for the vivid redness of inflammation? or is not the brightness of the colour a demonstrable proof of the rapidity of the motion? The blood retains its distinguishing arterial colour, and it only retains that while it is in motion: arrested even in an arterial vessel, it speedily becomes black and venous. It is only in the after stages of inflammation, and when the vessels have been over worked and debilitated, and can no longer contract upon their contents and hurry them forward, that congestion takes place; and then the vivid red disappears, and the dark and purple hue of venous blood succeeds.

The redness is most observable at the point where the inflammation commenced, and where it is most intense, and to which the principal pain is referrible, because there the vessels are most laboriously employed, and there too they are first weakened, and congestion ensues, and the red will yield to the deeper colour.

The redness occasionally occupies a very small and circumscribed space, and abruptly breaks off, and the natural colour of the skin immediately succeeds. This will not be wondered at when the nature of these vessels is considered. They are prolongations of the artery running into the parts in the immediate neighbourhood, for the important purposes of building up the frame, or producing the various secretions. They can scarcely be considered as branches of the artery. They are terminating fringes or filaments. They run their course in a few lines; but in that small space they anastamose and re-divide, and form a mesh-work of vessels, and then terminate in the minute veins by which the blood, now changed in its character, is to be returned. The very circumscribed nature of the inflammation, its circular form, and its sudden termination, sufficiently designate the class of vessels that are affected.

The minute calibre of the capillary vessels, and the important functions to be performed while the blood is traversing them, render it not improbable that the capillary circulation is naturally slow compared with the arterial. It is slow, that all the mysterious changes of the blood may be perfectly effected. The muscle of the vessel is sufficiently strong to propel the blood with the requisite velocity; but it is a diminutive muscle after all, and it is only when roused to unnatural exertion by the influence of the organic nerves that the vessel is able to carry, and them uscle to propel, sufficient blood to produce the inflammatory blush.

Heat is a characteristic of inflammation. The patients of the veterinarian cannot speak, and the increased temperature of the

part is one of the most valuable and the surest guides to the actual seat, and the intensity of the malady. It can be well understood, if the definition of inflammation already given be admitted, why increased heat should be a necessary consequence of inflammation. In the capillaries the blood is changed from arterial to venous; and, being so changed, among other important consequences, it loses a portion of its capacity for heat: it cannot combine with so much heat and hold it in a latent state,—a portion of the caloric which it before contained therefore escapes, and as the capillaries are found in every part of the frame, there is every where a laboratory for the production of animal heat. Under inflammation, more blood is sent through the capillaries of the part,—more blood is changed from arterial to venous—more heat is therefore extricated, and that in proportion to the extent and the degree of the inflammation, or, in other words, the additional quantity of blood that is carbonized.

Now, if inflammation be "an increased action of the heart and arteries, while the capillaries are in their natural state," according to Dr. Hastings, there can be no additional formation of venous blood, and no additional extrication of heat.

If, according to Boerhaave, the blood is obstructed from its thickness and viscidity; or, according to Cullen, the vessels are contracted or spasmed; or, according to Allen, they are debilitated and relaxed; or, according to Dr. Philip, there is a diminished action of the capillaries, then there cannot be the usual change from arterial to venous blood: there is not the usual quantity of blood exposed to the process, and coldness instead of heat ought to be the character of inflammation. When the vital current lags, the temperature of the part is diminished; and when it is arrested in its course, the coldness of death ensues.

The actual temperature of the frame, however, is not materially raised. It is only that of the skin. The animal body is surrounded by a medium—atmospheric air—usually of a temperature much lower than itself, and, from the tendency of free caloric to an equilibrium, rapidly stealing from it a great portion of the heat evolved in the change of the blood. The skin, therefore, or that portion of it exposed to the atmosphere, is of a considerably lower temperature than that of the frame. But when the heat is evolved with greater rapidity, from the change of a larger quantity of blood from an arterial to a venous state, the surrounding air cannot immediately combine with the whole of it, nor can the temperature of the skin be so much lowered. If the inflammation be ever so intense, the circumambient air will take away a portion of heat from the skin, and the temperature of the integument immediately over the seat of inflammation

will be less than the natural temperature of the frame; but the heat will be supplied too rapidly for the skin to be lowered to its usual temperature; and it is this variation from the natural degree of warmth that attracts the attention, and guides to the seat and degree of inflammation. A part feels hot to the observer that is above the natural temperature of his hand, and cold when it is below that temperature. The communication of heat, agreeably to the principle of equilibrium, from the part to the hand of the observer gives the sensation of heat—the abstraction of heat from the hand gives the sensation of cold; and according to the degree of heat over an inflamed part, the increased rapidity of the circulation through the capillaries, or the degree of inflammation, is estimated; or according to the degree of cold, as occasionally in the extremities, we judge of the deficiency of circulation there, and the probable and dangerous accumulation of blood around a vital part.

The *swelling* may be accounted for on almost every theory; but best of all on the supposition of increased action of the capillary vessels. If the capillaries are so numerous that you cannot prick any part with a pin without the starting of the blood, the distention of so many of these minute vessels will cause general enlargement of the part.

The definition of inflammation is, that "it is increased action of the capillaries;" not merely increased flow of blood through them, but increased discharge of all their functions, nutritive and secretory, with the occasional exception, perhaps, of one—exhalation. If a solid part be the seat of inflammation, there is increased nutriment to the part,—increased deposition of the substance of the part, at first perfect in character, but soon varying materially from the healthy structure. If it be of bone, or rather of cartilage, which is to give place to bone, there is a strange defect of organization—it is a mingled mass of cartilage and bone; or, when the part is macerated for preservation, an irregular, spongy, brittle, half-formed bone, is found, "medis indigestaque moles." When the deposit is formed in the cellular or muscular substance, the organization is as imperfect,—it is enlargement without decisive character—firm, yet easily lacerable: and even when the inflammation exists in the mucous or the serous membranes, the same process is observed—first, increased secretion of its natural and healthy quality, but soon changing its appearance and character, assuming in various parts the wildest and most fantastic forms, and ending in solid deposition, adhesion, congestion, impenetrability, and utter loss of function. This unnatural deposition is sometimes removed when the inflammation is subdued, but oftener, although irregularly, it is too firmly organ-

ized to be immediately removed; and, in the form of callous, or splent, or spavin, or engorgement, or hepatization, it long remains, to the injury or destruction of the function of the part.

The *pain* is easily explained, whatever may be our conception of the nature of inflammation. The vessels are distended, there is considerable interstitial deposit; and, consequently, the neighbouring parts will be compressed and suffer. Although the nerves which supply the muscular coat of the capillaries are unconnected with voluntary motion, or the sensations of pleasure or pain, they anastamose very freely with the nerves of the spinal. Voluntary motion, indeed, is withheld, because the important functions of life would often be ill-discharged if they were subjected to the caprices of the will; yet the sensations of pain and of pleasure are necessary to prompt us to certain actions, and to warn us against dangers and death; and therefore the organic nerves anastamose so abundantly with the nerves of animal life. Quadrupeds give indication enough that they feel the torture of inflammation as keenly as the human being. The expressive, lingering look at the flanks in inflammation of the bowels or of the lungs; the incessant shifting of the feet, and fevered pulse, and anxious countenance, in acute founder, indicate that which cannot be misunderstood. The pain is produced by inflammation, but it is referrible to another set of nerves, connected, however, with the ganglial by innumerable communications.

These are the four principal indications of inflammation. They are all of them satisfactorily explained by the definition of inflammation that has been adopted; while the redness and the heat of the inflamed part do not admit of explanation on any other hypothesis.

[To be continued.]

A CASE OF LOW FEVER, OR CHRONIC AFFECTION OF THE HEART.

By W. Y.

On the 9th inst. I first attended a pony 12 hands 3 inches high, belonging to a gentleman. It had not fed well or been in its usual spirits for several days, and previous to that had been ridden by children and driven about, and exposed to cold and wet more than had been customary. The pulse was 48, a little languid, and decidedly irregular; the mouth somewhat hot; the ears and extremities more than usually warm; the breathing very slightly laborious; the membrane of the nose slightly but darkly injected with streaks, or rather ramifications

of red on the inferior and anterior part of the septum, and on looking a little higher up the injection had ceased, and the membrane was of a pale and rather livid colour. There was not the slightest cough,—no indications of pain; but listlessness, disinclination to move: the animal would lie down on his chest half the day, with his paws doubled under him, and his muzzle not far from the litter, and with scarcely shifting his posture. The appetite had been gradually failing, and the animal now refused all food. The malady seemed to have the character of what the human pathologist would call *typhus mitior*, or low nervous fever, a disease of which the careful observer will meet with many cases in the treatment of domestic animals. Eight pounds of blood were abstracted, and balls composed of one drachm each of digitalis and tartarised antimony, and three drachms of nitre, with linseed meal and palm oil, were given morning and night.

10*th*.—The pulse would be still 48, if the intermissions were counted, and is fuller and rounder, but, varying from the 5th to the 8th or 9th pulsation, is an intermission of one. The mouth is not so hot; the membrane of the nose has cleared up; a slight degree of mucus hangs about it; the colour is brighter and more natural, but still with a perceivable intermixture of venous congestion on a ground a little too red. The pony is on his legs—has eaten a little; the countenance more lively, and the animal taking his usual notice of persons around him. The dung of its natural state, except somewhat dark-coloured and a little slimy. Continue the balls. Offer him mashes and a little green meat.

11*th*.—Decided improvement. The pulse, however, would still be within a beat of the original number if its intermissions were counted, which are now at every third or fourth beating. The mouth of its natural warmth; the membrane of the nose more healthy; a little redder than usual, but a very faint red, and the mucus having disappeared. The animal has eaten a mash and a tolerable quantity of hay; and, being taken out of the stable, walks away without apparent weakness or staggering. A ball composed of black sulphuret of antimony one drachm, and sulphur and nitre each three drachms, morning and night, and a handful of corn in the mashes. As much green meat as he will eat.

12*th*.—Pony apparently well, except that the dung is a little too small and hard. A ball as the last, with half a drachm of aloes in it for three days: mashes morning and night, and a very slow return to his usual feed. Dismissed.

16*th*.—I was again sent for in haste. The pony had for the last two days been declining again. It had refused its food, resumed

its former listless habits, was purging, although not violently, and the fæces were exceedingly offensive. There had been this morning one decided shivering fit. I found the animal not much altered in appearance, but breathing somewhat more laboriously; the mouth a little, but very little, hotter than usual; the extremities comfortable; the membrane of the nose almost of its natural colour, or a little more glistening upward, but, in the angle at the bottom, a concentrated spot of injection, red, yet with a slight tendency to a dark shade. Pulse 60, a little sharp, but irregular. Six pounds of blood were taken away, and the digitalis ball given. Injections of gruel were thrown up, and a pail with gruel fastened to the manger, some of which the pony drank, but he refused all other food.

17*th*.—The digitalis has strangely done its duty. The pulse intermits at every second beat, and is full and inclined to hardness. The number would still be 60. The membrane of the nose redder, and the redness more diffused; the mouth hotter, but no more shivering. The pony listless, refusing now even his gruel and all other food. Continue the injections, horn with gruel, and give balls as the 11th. Rowels in the chest and under the jaw.

18*th*.—Much the same, except that the pulse was curiously altered: it had risen to 72, but no thorough intermission, but alternate very hard and then small strokes, with a little irregularity. The purging was a little abated. The animal staggered; but the membrane of the nose was decidedly red, and the mouth very hot. Bleed again four pounds. Balls as yesterday, with half a drachm each of gentian and chamomile; and clysters of gruel, and half an ounce of laudanum. Gruel as before.

19*th*.—The horse worse in every way. The pulse 90; the purging increased. I fancied that the horse began to look round at his flanks. Mouth hotter, nose more intensely red; the rowels have not worked. Blister the sternum and sides, and give ball containing an ounce of the compound chalk powder with opium.

20*th*.—The blister has not risen. The pony stales with difficulty, and seems painfully but ineffectually to attempt to pass fæces. The pulse is now 108, the nose red and the mouth hot; the purging stopped: the animal now decidedly looks at his sides; extremities comfortable—no cough, no nasal discharge, no shivering. Bleed four pounds. The blood seemed at first to separate from itself a little milky fluid, but when the coagulation was perfect this was not seen, but the fibrine was unusually great in quantity, torn with difficulty, and of a pinkish-white colour. Injections with gruel. The sphincter ani was so contracted, that the pipe was introduced with great difficulty, and the hand could not be pass-

ed into the rectum. Some singularly hardened pieces of mucus and fæces were returned. Horn with gruel; ball of digitalis.

21*st*.—Apparently better; the difficulty of staling, and the painful aud ineffectual attempts to dung have ceased. The pulse is 96, low, but not irregular. The pony has drank at least three gallons of gruel, at different times: the mouth, however, is very hot, and all solid food is refused. Give no medicine. Towards evening he seemed a little better still, and had again drunk gruel; but he died early on the following morning.

22*d*.—The animal was opened at noon, and while it was warm. The lining membrane of the trachea was slightly injected; the pulmonary pleura inflamed, but not intensely, but there were one or two small patches or thickening of the membrane, and deposition of coagulating lymph; no congestion in the substance of the lungs. The mucous coat of the intestines, thro gh its whole extent, was slightly vascular, of a deeper colour, and with more appearance of inflammation in the colon. The principal disease, however, was in the heart, where an intelligent pupil of mine said, some days before, that it would be found. The pericardiac bag contained a quart of yellow serous fluid. The portion of the membrane covering the heart seemed, in various parts, to be easily detached from the substance beneath, and the duplicature lining the bag was not in the slightest degree affected. The substance of the heart was pale, softened, and had a macerated appearance. It would seem as if the finger could be easily thrust through the parietes of the ventricles. The membrane lining the ventricles, and particularly the left ventricle, presented numerous spots of ecchymosis. The whole of the cornea columna on the septum was blackened. The duplicatures of membrane constituting the mitral and semilunar valves, the last particularly, presented a very singular appearance from their degree of injection, and the lining membrane of the aorta was of a yellowish red.

I offer this case almost without comment, although it affords matter for much serious reflection. Did the langour and depression so marked, even at the commencement of the disease, designate that low and insidious fever which so often runs its course unsuspected, and which no skill can arrest, and the ravages of which are at length to be found in every important viscus? or was it from the beginning an affection of the heart, which no symptoms sufficiently characterized, but which, at length, became connected with or produced the general irritation which was so manifest? Could the depletion have been carried to a greater extent? Could other remedial means have been adopted?

The prompt and singular effect of the digitalis will not be overlooked. One drachm, at the commencement of the relapse, producing a suspension of every second pulsation of the heart. The singular character of the pulse the day after the digitalis was omitted is deserving of consideration. Ought this to have directed our attention more to the irritable state of the heart? or, if so, what else could have been done? The excessive purging produced by one drachm and a half of aloes (for only three of the balls were given), and the inability to bear even so slight a tonic as half a drachm of gentian and chamomile, are important circumstances.

The case is before my veterinary brethren. The record of an unsuccessful case, whatever may become of the practitioner, is always useful to others.

STRAINING AND BEARING DOWN OF THE VAGINA AND UTERUS IN A COW.

By Mr. W. A. Cartwright.

On Tuesday morning, the 15th of March, 1831, Mr. Judman's cow man, of Black Park, on entering the cow-house discovered that one of the cows had broken loose from the stake, and could not rise up on her legs: soon after she became very uneasy, and violent straining and a bearing down of the uterus and vagina commenced, and continued up to the time I saw her, which was about 12 o'clock on the 16th.

Symptoms.—Strains violently; the posterior parts of the uterus are protruding, and the vagina looks very much inflamed, and as large as one's head. The os uteri is *not the least dilated*, and from which a little slime issues. Pulse quick; horns hot and feverish; appetite not amiss, nor has it been; has had one calf; three years old, in fair condition, and not at her time of calving by a fortnight; respiration quick, and grunts.

Treatment.—Bleed to five quarts. Give opium ʒij, salts ℔j, in ℔iv water. The blood red, and not the least buffed.

7 P. M.—The cow not being in the least better, I determined on attempting to remove the calf, as I imagined it to be dead, from the hurt she had received. I therefore, first introduced my finger into the os uteri, gently, but with difficulty, and continued to dilate it until I could introduce the whole of my hand; and I continued this plan until it was, in a manner, as fully dilated as if the cow was at her full time. This proceeding took nearly two hours, and my hand was repeatedly supplied with goose oil,

to lubricate and sheath the parts; and as the passage became larger, I thought she seemed easier, and voided about two quarts of water. We then, with a good deal of assistance, removed the calf, which was a very large one, and dead, but had not been so above a day or two. After it was removed she seemed a deal easier, and drank a little warm water, and ate a warm bran mash.

The vagina and uterus was pushed up, a truss put on her, and left for the night.

17*th*.—Not so well. I gave opium ʒj, spirits of turpentine ℥ij, nitre ℥j.

6 P. M.—Respiration increased, and she seems in a good deal of pain. Cannot get up. To have warm water: bowels well opened.

18*th*. 10 A. M.—Every symptom worse. Respiration very quick indeed, and throws her head about. As a last resource (seeing there was no probability of her recovering), I took three quarts of blood from her, which seemed to relieve her; but it was not buffed. I then left her, and was informed she got up a few minutes after I left, then fell down, and died immediately.

Examination.—The posterior parts of the uterus and vagina that had protruded were very red and inflamed: the other part of the uterus was perfectly sound. Just under the sacrum there was a coagulum of black blood the size of one's hand; and the adjacent parts of the vagina were infiltrated with serum and lymph.

About the hip joint there was a good deal of lymph and serum.

During the time the calf was being extracted something was heard to crack several times. I imagine it is in consequence of the ligaments being ruptured sometimes, and from the great pressure there is about the parts in calving, that we have the disease called dropping after calving.

The paunch was enormously filled with food, but soft; the third stomach was equally as full, and *approaching* to staking: every other part perfectly sound.

THE VETERINARIAN, JUNE 1, 1831.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

ALTHOUGH we have but few acknowledged correspondents in the present number, and we have no reason to doubt, and we do not doubt, the good feeling and honourable purpose of several

anonymous friends, yet we regret to be compelled once more to say, that we will not admit a single communication that is not *to us* authenticated by the name of the writer. In the present state of veterinary affairs, this is a proper, an indispensable guarantee, as it regards ourselves and the profession. We do not demand that the name of our correspondent should go before the public, but *we will know with whom we have to do;* and there shall be no stabbing in the dark while we have to do with THE VETERINARIAN.

An acknowledged correspondent will occasionally find a niche in our journal, even although his should be "words that burn." We can allow much for the warmth of controversy, although our sincere wish is, that of the vast majority of our readers and every well-wisher to veterinary science, that the cause should never be compromised or put to hazard by the bad temper with which it is defended. A communication in the present number would have better suited our taste, if it had not been so strongly worded, and if personal feeling had not a little too much mingled with scientific discussion; but as an attack had been made upon this gentleman, or, at least, a reference to him in the preceding number, we could not refuse him the privilege of defending himself.

We wish we could convince every disputant, that *plus ratio quam vis cæca valere solet,* and that the reputation and the cause they advocated would be best supported when they could say, "*Neque extra necessitates belli præcipuum odium gero.*"

If, however, we cannot insert the letters of our anonymous correspondents, we may briefly reply to them. To "Fair Play," "Scrutator," and "A Vet.," we say, that although we are sick of the word "discovery," and are often inclined to believe that they who are rancorously quarrelling about their discoveries, are far more influenced by personal vanity than love of their profession, yet "*suum cuique*" is a motto which should never be forgotten in morals or science; and, therefore, we have no hesitation in saying (and we do but express the opinion of the majority of our brethren), that, setting aside a great many absurd pretensions, a great many wild theories and wilder practices,

fortunately for science, even more short-lived than their first promulgators—a great many fooleries hanging about, and mystifying, and neutralizing, and disgracing that which contained much sterling good—to Mr. Coleman we are indebted for the establishment of the grand principle of ventilation; by which the list of the most contagious and fatal diseases to which the horse used to be exposed has been curtailed, and the lives of thousands of these useful animals preserved;—to Mr. Sewell the credit is due of reviving the operation of neurotomy, which has added years of comfort and usefulness to the existence of so many of our quadruped servants;—to Mr. B. Clark is due, not the discovery of the elasticity of the horse's foot, but the merit of having placed this important principle in a clearer point of view than any previous author had done, and assisting others in forming more accurate and comprehensive notions of the structure and functions of the different parts of the foot than they would otherwise have done;—to Mr. James Turner we yield the claim of first bringing before the public, and clearly explaining, the nature and the seat of that most frequent of all the maladies of the fore foot of the horse, the navicular joint disease; not, perhaps, altogether unknown to a few of our best and most observant practitioners, but the existence of which was not acknowledged at any school, and even denied in most of them: and to him shall also be awarded the undivided praise of adapting an old and useful shoe, the one-sided nailed shoe for the prevention of cutting, to a far more important and unthought-of purpose, the prevention of contraction. Mr. W. Goodwin shall not lose the meed of dispelling the mystery which hung over lamenesses of the hind leg, when he first directed the attention of his professional brethren to the inflammation of the synovial membranes of the small bones of the hock: and no one will deny that, while Mr. Blaine was, for many a year, the valued companion of the student in the dissecting room and in his private study, he was the father of canine pathology.

Our Correspondents have been pleased to compliment us on some humble contributions to the advancement of veterinary science. We are perfectly willing to leave those claims in their hands, and to the just estimation of our successors. Every labourer in our

cause will ultimately have his proper rank assigned him in the scale of grateful and honourable recollection.

What shall we say to other anonymous Correspondents? "Studentes" (two of them);—"A new dub." If there be that utter difference of opinion, which there is stated to be, upon almost every point, theoretical and practical, between the professors at the Veterinary College,—if these differences are continually forced upon the notice of the students,—why it is very foolish conduct, and altogether indefensible too; for it will be difficult, or rather impossible, for the pupils to arrive at any clear or useful conception of the principles or practice of their profession amid this conflict of opinion. If it even goes so far that the prescriptions of one professor are not allowed to be compounded until they have been revised by the other,—if the pencil is often used with an unsparing hand, and not only the proportions of the ingredients are frequently changed, but whole pages now and then struck out,—this does, indeed, surpass our comprehension. It is a state of things that should not be allowed to exist another moment.

As to Mr. Sewell's lectures, this is a delicate point for us to touch upon. We always understood that they were to be supplemental to those of the professor; that, while Mr. Coleman's comprehended veterinary *physiology and pathology*, Mr. Sewell's were to embrace veterinary *surgery*. On this principle alone could we ever reconcile it to ourselves that other lectures, beside those of Mr. Coleman, for which the students had to pay, should be delivered at the college. We were more reconciled to it afterwards, when we were informed that Mr. Sewell's lectures were to extend to all domestic animals. But if it be true that Mr. Sewell is now going over—no, not the same ground with Mr. Coleman, for they occupy different grounds upon almost every subject,—but pretty nearly the same course of subjects with Mr. Coleman, and that his lectures contain only different explications of the same subject, we do confess that we think this is wrong. The students *have already paid* for physiology and pathology, and, perhaps, they ought to be considered as having paid for

surgery too; and Mr. Sewell has no right to levy contributions on them while he is preparing himself for the situation which he expects by and by to occupy. Setting aside the implied censure on Mr. Coleman's lectures as being imperfect and erroneous, we have again the system of "confusion worse confounded," which must embarrass and mystify the notions of the students, and ill prepare them for consistent and straightforward practice.

At the Veterinary College, as at every other medical school, each man should have his place, and to that he should strictly confine himself;—his duties should be clearly defined, and to those, and those alone, should his honourable attention be devoted: then alone will the reputation of the school be established, and the pupils qualified for their profession.

Extracts from Journals, Foreign and Domestic.

On the Employ of the Chlorurets (Chlorides?) in Hoove in Cattle, and Cholic in the Horse.

By M. Charlot.

It is well known that the herbivorous domestic animals are subject to distention of the intestinal canal by gas which is extricated in the intestinal canal; that this occurrence is most common among oxen and sheep; and that the rumen or paunch is the principal seat of these gaseous developments.

These elastic fluids are not always of the same nature, or extricated in the same quantity; they vary according to the time which has elapsed from the ingestion of the aliment, the nature of the food, and many other circumstances which we are unable to appreciate.

Whatever be the cause of this extrication of gas, it is sometimes so considerable that the animal would inevitably perish if assistance were not promptly administered. Various measures have been proposed to avert this fatal termination: they may, however, be reduced to two, the neutralization of the gas, and its evacuation. To evacuate the gas, sounds or flexible tubes have been employed, reaching from the mouth into the rumen, or, oftener, the rumen itself has been punctured. The

first is not always practicable, proper instruments may not be at hand, or persons able to use them may not be found: the second requires a bold operation, which is not always free from accident.

The alkalis have been principally proposed to neutralize the gas, and among them ammonia has always occupied the chief rank; but far from preventing, this alkali has often accelerated the suffocation of the animal, especially in sheep. In many other cases the alkalis have been employed without effect, especially where carburetted hydrogen has been the principal ingredient in the gas. On these accounts I have been most anxious to discover a medicine which shall accomplish the desired object without risk of fatal accidents.

To simplify the therapeutical examination of these distentions of the stomach from the extrication of gas, I shall divide them into recent and chronic. I compare the gaseous products of recent indigestions to those which result from the first fermentation of vegetable masses, and in which carbonic acid and carburetted hydrogen prevail. In chronic fermentations, and when the fermentation is more advanced, sulphuretted hydrogen predominates. Although we possess only some isolated works on the analysis of the intestinal gases in our domestic quadrupeds, we are warranted in concluding that they principally consist of hydrogen and its compounds. The facts related by Chabert and Barrier, and especially the analyses of MM. Fremi and Lameyan, justify us in this conclusion. Their experiments were made on a cow: that cow was exceedingly swelled; they obtained the gas by puncturing the rumen, and they found it to be composed of eight parts of sulphuretted hydrogen, fifteen of carburetted hydrogen, and five of carbonic acid. After this analysis, and the simple view which I had taken of these analyses, I was led to think, that since hydrogen predominated in the gaseous products, it was only necessary to select a substance which had a strong affinity for that gas in order to induce it to enter into new combinations, and consequently to condense it. Chlorine first suggested itself to me as a simple means of realising my wishes; but as it is exceedingly difficult to administer chlorine in any degree of purity, the chlorurets next attracted my attention. Before, however, I applied my theory to the treatment of these gaseous developments in animals, I determined to institute some chemical experiments which should bear directly on the point. Into a tube filled with mercury I introduced a mixture of carbonic acid gas, and sulphuretted and carburetted hydrogen. I next passed a

little of the chloride of soda through the mercury. These gases disappeared, and the mercury mounted into the tube.

This experiment having completely confirmed my theoretical views, I recommended several chlorurets with an alkaline base to the trial of my veterinary friends, and I pointed out the following method of trying their efficacy. For recent indigestions and extrications of gas, I advised a spoonful of the chloruret in a bottle of cold *lye* water, considering that as in this case the carbonic acid prevailed, it was proper that the dose of the alkali should be increased. For chronic indigestion, or which followed the use of dry food, two spoonsful of the chloruret in a bottle of cold water, that the greater quantity of carburetted and sulphuretted hydrogen might be decomposed by the chlorine.

I also recommended that the chlorurets should never be given in liquids that contained any organic substances whose great affinity for chlorine might neutralize its action; such as decoctions of bitter or aromatic herbs, or wine, oil, or mucilages. As to the choice of the alkali with which the chlorine was to be combined, it was always to be a fixed one, as potash, soda, lime, &c. A chloruret of ammonia should never be added, for that would be decomposed, and would thus neutralize the therapeutical action of the chlorine; sulphuric ether, however, might be added to the principal medicament without fear of decomposition.

If I advise that the chloruret should be measured with a spoon of ordinary size, it is because that utensil is generally at hand; but if I reduce the quantity to weights, I suppose that a spoonful of the chloruret of potash is equal to about half an ounce.

In conformity to my recommendation, many practitioners have made very satisfactory use of the chlorurets in these affections. MM. Jousset, Simoneau, and Labreuille particularly, obtained the most happy results in the treatment of the ox and the cow.

MM. Drai, Salman, and myself, are the only persons who have employed these medicines for sheep. The dose for them is a quarter of an ounce. Not having personally witnessed the effect of this remedy on the ox, I will confine myself to the relation of a few cases in the sheep and the horse.

On the 26th of November, 1830, I saw two old ewes, destined for the butcher, who, on their return from the pasture, were strangely swelled. I gave to each of them a small spoonful of the solution of the chloruret of potash in a glass of cold water. One of them had fallen down, and seemed to be at the point

of death, before the remedy was administered; but she immediately arose, and the swelling ceased in both of them in a very short time. Soon afterwards I administered the chloruret to four sheep under the same circumstances, and obtained the same result.

The chlorurets are always preferable to ammonia for sheep, not only on account of their greater efficacy, but because the latter medicine often occasions great irritation in the pharynx, and thus a portion of the liquid is forced into the pharynx, and the animal is suffocated.

I long confined the administration of the chlorurets to ruminants, deeming the *meteorisation* of the horse to be incurable, or at least beyond the reach of such a remedy. Beside, I had not analysed the intestinal gas of the horse; and the accumulation of gas in this animal being principally in the large intestines, I thought that the chloruret, in passing through the stomach and small intestines, would be decomposed before it reached that portion of the alimentary canal which was distended by the gas. Experience, however, has proved to me that I was wrong.

I had given to my father, who lived in the country, a bottle of the solution of the chloruret of potash, to be used for ruminants alone. A mule, however, of one of his neighbours having violent cholic, and being much swelled, and seemingly dying, he gave two spoonfuls of the solution in a bottle of cold water; in a few minutes the swelling at the flank began to subside. The dose was repeated, and the animal completely relieved.

As soon as I became acquainted with the fact, I recommended the use of the chloruret in tympanitis in the solipede. MM. Simoneau and Garnon adopted it with great success.

On July 25, 1830, a horse belonging to M. Ouchette, having eaten too much new hay, began rapidly to swell, and exhibited much pain. Two spoonfuls of the solution were given to him, and he was immediately relieved.

On August the 11th, a horse belonging to M. Blanchet, after having suffered from indigestion and colic, began to swell, but was presently relieved by the chloruret.

November the 8th, M. Joineau consulted me respecting one of his horses, attacked by colic, the consequence of indigestion. I gave him an ounce of the solution in cold water, and soon afterwards repeated the dose, and he was cured.

I then made some experiments on the effect of the chloruret on the horse in health, to ascertain whether danger was to be apprehended from its administration. I gave twelve ounces to an old horse without any serious inconvenience resulting; but

eighteen ounces given to the same animal produced violent colic and superpurgation.

The chloruret of potash contains two bodies possessed of most active powers. Is it to the chlorine or the potash that its effect is to be attributed? This is a question to which my experience does not permit me to give a decided answer, but it shall be the subject of future inquiry.

I consider the results obtained on the horse as even more important than those observed in ruminants. We possess many means, and not always without efficacy, for the relief of the ruminant; but for the horse we do not hitherto possess one remedial measure that can inspire confidence. I am assured, from the examination of many horses that have died from flatulent colic, or distention of the intestines with gas, that there are few or no lesions of the intestines themselves, but those only which are the result of apoplexy or suffocation. All authors of repute consider horses violently *meteorised* as lost, for the puncture which is so often practised with success on ruminants, must be here a last and desperate resort.

I think that the chloruret of potash, which is so well known in commerce, is preferable to any of the others; but its purity should be ascertained before it is used. The sulphate of indigo will afford a good test; one part of the liquid chloruret ought to take away the colour of fifteen parts of the solution of indigo in sulphuric acid.

I think I may make the following conclusions from what has been stated:—

1. That the chlorurets are preferable to the alkalis for neutralizing the gases which are developed and accumulate in the paunch of the ruminant and the intestines of the horse.

2. That, although the chlorurets do not attack directly the cause of the evil, and only destroy one of its effects, it is nevertheless of great advantage to decompose and neutralize and condense those gases, which not only irritate the organ which contains them, but, by the distention which they produce of the abdominal viscera, diminish the capacity of the chest, and embarrass the action of the lungs, and even cause suffocation.

3. That the method of neutralization is always preferable to those of evacuation, hitherto known in ruminants, especially when a mechanical distention, by the pressure of solid food, is not suspected.

4. That the chloruret of potash is preferable to other combinations of chlorine, from its cheapness, and the ease with which it can be procured.

5. That the chlorurets may be associated with ether, and thus furnish practitioners with a new combination, from which they may derive advantages, both tonic and diffusible.

Recueil de Méd. Vét.

An Account of a Rabid Horse.

By M. Dupuy.

An entire draught horse, fourteen years old, had been observed not to feed well for several days. After a journey of some leagues he was put into stable with his old companions, when he was seen to attempt to bite them. On the following day he rolled violently about, uttering a peculiar plaintive cry. A veterinary surgeon was sent for, who, mistaking it for a case of staggers, gave a drink composed of two ounces of aloes, and some mucilaginous injections. Being more violent on the succeeding day, the horse was copiously bled twice, and setons were placed in his chest and the inside of his thighs. The disease became still more terrible—the animal tore the setons from his chest, rolled himself about, kicked incessantly, and furiously bit his own shoulder. At length he freed himself from his halter, and the door of the stable was secured. Up to this time he had drunk as usual; he drank two buckets of white water, which were offered him by a servant, and whom he did not attempt to bite; but now his food was thrown in, and his water lowered through the window over the door. It was then remarked, that whenever water was poured into the bucket from a certain height, the sight and the noise of the water caused the most violent and dreadful spasms, and he bit with fury at every thing within his reach. It was at this time, on the fourth day of the disease, that M. Dupuy first saw him.

The animal was covered with perspiration; the eyes were unusually bright; he was continually shaking his head; he bit himself about the breast; his mouth was filled with spume; he gaped almost every instant, and with effort. Whenever he heard the fall of water he fell into the most violent convulsions: he would then rush towards the bucket, as if he was about to drink, agitate the water with his lips, and immediately be seized with horrible convulsions, and fall, uttering a cry of distress; but he would immediately recover himself and rise again. The struggles were particularly violent when water was dashed upon his head, and they would commence by his starting and endeavouring to seize the fluid with his teeth.

He died on the fifth day, in the morning, in violent convulsions.

On examining him after death, the whole muscular system was discoloured and softened, with numerous black spots of ecchymosis in the cellular texture.

The substance of the heart had undergone the same alterations. It was discoloured, softened, and covered with large ecchymoses. The membrane lining the cavities of the heart was of an orange colour, and the bag of the pericardium contained two pounds of bloody serum.

The sub-cutaneous laminated tissue, especially about the larynx, was filled with coagulated albuminous serosity, resembling jelly. It was the same in the interspinal muscles and the great dorsal.

The salivary glands, and particularly the parotids, were exceedingly red, infiltrated with yellow serosity, as also were the surrounding parts.

The mucous membrane of the nasal cavities, especially that which covered the septum, and the turbinated bones, and the guttural pouches, were thickened and surcharged with yellow serum. The membranes of the larynx, the trachea, and the bronchial tubes were of a violet colour and engorged with blood, and these tubes were filled with mingled spume and mucus.

The spinal cord was softened from the fifth cervical vertebra to the first dorsal; and at the lumbar portion this softening of the substance of the cord was particularly evident. The medullary substance resembled thin caseous matter.

The cineritious portion of the brain and spinal marrow was redder than usual, and the medullary substance was studded with minute spots of blood. The plexus choroides were engorged, red, and presented little calculous concretions. The membrane of the spinal cord contained in its duplicature a yellow serum, as did the nervous filaments, until they perforated the dura mater.

Journal Pratique.

On the Medical Properties of Digitalis.

By M. Dupuy.

M. Auguste Leroyer, apothecary in Geneva, has been enabled to separate the active principle of digitalis, with which he has made some experiments on animals.

Magendie made known the results of the researches of this chemist, so that they might be repeated, and it might be ascertained, whether it is possible to extract from this plant a sub-

stance always the same, and which possessed constant properties. This result cannot but be desirable; for there is no surgeon who does not know that the effects of digitalis, often so useful, are nevertheless variable.

We shall say nothing of the method of obtaining this substance, which is similar to other vegetable alkalies, and to which he gives the name of *digitaline*.

We shall only relate some experiments which he gives of the action of digitaline on the animal frame.

A grain of digitaline, dissolved in three drachms of distilled water, was injected into the abdomen of a middle sized rabbit. At the expiration of a few minutes the respiration became slower; the pulse fell to sixty, and was very irregular: all the symptoms of life were gradually extinguished; and the animal died without agitation or pain, and as though it had fallen asleep.

He afterwards injected into the veins of a cat half a grain of digitaline, dissolved in two drachms of lukewarm water: the animal was dead in a quarter of an hour; and the symptoms resembled those we have described. Just before he died the respiration fell to six or eight; the pulse was weaker and more irregular, and at last was entirely lost.

A middle sized dog was destroyed in fifty minutes by injecting in the jugular vein half an ounce of water containing a grain and a half of digitaline in solution. The arterial blood of the animals thus submitted to its power presented a decided venous tint, and had very little tendency to coagulate. Examined by a microscope, the globules that it contained seemed, in the cat especially, a little changed in form, but not decomposed.

It appears that the deleterious principle, dissolved in the blood, acts immediately on the nervous system.

Nevertheless, an attentive examination of the brain and its dependences did not enable MM. Leroyer and Prevost to discover on what parts the digitaline principally acted: the cerebral sinuses were gorged with blood, but the cerebral substance did not appear to have undergone any alteration. Magendie concludes by saying, that it is much to be desired that the chemical and physiological experiments of M. Leroyer should be repeated.

I administered six and a half ounces of digitalis, in the form of an electuary, to a horse aged fifteen years. The pulse, before the experiment, was 39 or 40; two hours after it rose to 60, and four hours after to 150. The animal was depressed; the head hung low; the nasal membrane was pale, while the buccal was red; the limbs trembled; he refused to eat, and laid down sometimes on one side, sometimes on the other; the ears and the limbs were cold, and the globe of the eye agitated with convulsive movements.

A short time afterwards, the pulse became very irregular, small and intermittent; the animal seemed in greater pain; the respiration was accelerated, and convulsive movements of the lips were observed; the spermatic cord was very painful; the membrane of the nose livid. From time to time the animal became a little lively, but he was soon again insensible to the impression of surrounding objects. At the end of an hour the pulse was very weak, and could hardly be felt; the excrements were mixed with glairy mucus, and were evacuated every moment. His step was tottering; the vessels of the face much gorged; the belly swelled; the nostrils much dilated; general shiverings, and almost continual; and, some hours afterwards, the animal died suddenly, without any great convulsions.

On opening him, which was done immediately, the ventricles of the brain were found to be filled with serosity, as was the whole spinal canal; the vessels of the choroid plexus, and of the brain, were gorged with venous blood; the ganglions of the throat were reddened, as was the tissue of the lungs. There was dropsy of the pericardium; the substance of the heart was very soft, and tore easily: there were numerous ecchymoses on the inferior part of the ventricles. The stomach was distended with air, and its internal membrane presented many red spots. The floating part of the small intestines was corrugated and curled up. The contents of the colon were very fluid, and the mucous membrane of the cœco-gastrique part of the same intestine was of a red and livid hue.

Another Experiment on an old Draught Horse.

Previous to the experiment, the pulse in this animal was 52, and the inspirations 8. Seven ounces of digitalis were given to him in the morning, in the form of a ball. During the first two hours nothing particular was observed; but after that he exhibited symptoms of colic, and convulsive motions of the fore limbs; the pulse was the same, yet the vessels were full: the respiration was not accelerated, but slightly convulsive. At the end of another hour the pulse was 95, and the mucous membranes appeared tinted with red. Considerable rumbling could be heard in the abdomen. Still later the temperature of the skin was augmented: there was swelling at the flanks; the beating of the heart was strong and frequent, but with intermissions; but the pulse at the extremities was weak; the mucous membranes were discoloured, and the fæces soft and liquid, covered with a great quantity of mucus. A diminution in the heat of the skin was afterwards observed, and of the irregularity of the pulse, which increased to 122 pulsations in a minute.

A few hours after this, the pulse became weak, and hardly perceptible; the inspiration was rapid—the expiration slow. Some minutes before the horse died the pulse was yet more feeble, and with greater difficulty of distinguishing the pulsations, while the beats of the heart still continued strong and regular. The parietes of the abdomen were much distended, and the animal fell, and died almost instantly.

On opening the abdominal cavity, the cellular tissue that separates the inferior muscles was found to be infiltrated with a yellow serosity; and the intestines were enormously distended with air, with patches of black scattered here and there on the mucous membrane. The stomach, much distended, offered the same infiltration at its smaller curvature. The internal membrane was red, as was that of the colon; the liver was small, soft, yellow, and easy to be torn. The diaphragm presented a fissure about a foot and a half in extent, at the fleshy and inferior part near the sternal region. Between the shoulder and the thorax, there was an effusion of blood of a violet colour. The tissue of the lungs was very red, as were the lymphatic ganglions situated at the division of the bronchiæ. The mucous and internal membrane of the trachea was also very red. The pericardium contained a large quantity of yellow serosity, such as is seen in dropsy. The tissue of the heart was softened, its internal membrane red; while the auricles and the aorta were of a yellow tint. Nothing was observed in the other parts.

In a third experiment the same appearances were observed; the diaphragm was found to be equally torn, but this was manifestly occasioned by a sudden fall. Finally, this experiment, repeated on other horses, was always attended by the same results; and out of nine, seven had the diaphragm ruptured, at the inferior region near the sternum, with an injection of violet-coloured blood; distention of the whole capillary system of the frame, and, above all, of the subcutaneous and the pulmonary vessels.

A Case of Embryotomy.

By M. Thibaudeau.

On the 1st of March I was consulted respecting a Breton cow, twenty years old, which was unable to calve. I soon discovered the obstacle to the delivery. The fore limbs presented themselves as usual, but the head and neck were turned backwards, and fixed on the left side of the chest, while the fœtus lay on its right side on the inferior portion of the uterus. I vainly attempted placing the mother in different positions during my efforts to

bring the head and the neck into a more favourable situation. I then thought that the parturition might be effected by bringing forward the hind limbs; but I was unable to seize them, for they were deep in one of the horns of the uterus. Almost despairing of success, I next endeavoured to extract the fœtus by pulling violently at the fore limbs, but the bending of the head and neck offered an insurmountable obstacle; and my only recourse to save the mother was to cut the calf in pieces.

Veterinarians who have had occasion to practise this operation know how difficult it is to avoid wounding the uterus, because the mother generally struggles violently, and the presence of the hand in the uterus causes strong contractions of that viscus; and because, after protracted labours, and where much force has been used, the mucous membrane of the uterus is usually injected and thickened. The operator, likewise, in endeavouring to avoid wounding the animal, often seriously wounds himself.

To avoid these accidents, or to diminish the frequency of their occurrence, I constructed a simple instrument. It consisted of a handle or case, containing a double-edged blade, and which might be retracted or pushed out at pleasure by means of a spring. It is easy to perceive the advantages which this instrument offers. The operator can introduce it into the vagina and uterus without any risk of wounding the beast or himself; he can assure himself of the precise situation of the fœtus, and the parts which he wishes to divide, and then project the blade and commence the dissection. If the mother struggles violently, or his arm is embarrassed by the strong contraction of the uterus, he can retract the blade, and wait until the spasm is past, or the animal is more quiet; and he can replace the blade in the handle, before he withdraws his arm from the uterus, when the operation is concluded.

I thought this a favourable opportunity to use my instrument. I amputated the left shoulder of the fœtus, in spite of the difficulties which the position of the head and neck presented. Having withdrawn this limb, I made an incision through all the cartilages of the ribs, and laid open the chest through its whole extent; by means of which I was enabled to extract all the thoracic viscera. Thus, having lessened the size of the calf, I was enabled, by pulling at the remaining fore-leg, to extract the fœtus without much resistance, although the head and neck were still bent upon the chest. The after-birth was extracted immediately afterwards.

The mother was very much exhausted. I ordered that she should be well covered, that a bottle of warm red wine should

be given to her, and that she should then be left undisturbed. She lay four or five hours before she attempted to rise. Emollient injections were then thrown into the vagina, a bran poultice was applied to the loins, and mashes were given to her.

During the next eight days, she continued to be exceedingly weak: she would not eat; and she was subject to frequent colicky pains. On the twelfth day her appetite began to return; she then speedily recovered her strength, and is now in perfect health.

More recently I have employed the same instrument in operating on a cow, the neck of whose uterus was so constricted that the finger could scarcely be introduced. I divided the stricture, and saved both the cow and the calf.

Recueil de Méd. Vét.

The Exportation and Importation of Horses in France in the Year 1830.

IMPORTATION FROM		EXPORTATION TO	
England	522		407
The Low Countries	9211		324
Prussia	670		26
Germany	3394		85
Switzerland	3927		364
Sardinia	142		924
Tuscany	1		11
Spain	47		769
Austria	2	The English Islands	8
Egypt	5	The Mauritius	6
The Barbary States	5	The Isle of Bourbon	17
		Martinique	7
		Guadaloupe	19
Total	17,923		2,967

In 1829 the Importations were . . . . . 16,075, and the Exportations . 4409, leaving an average annual deficiency in the breed of horses in France of 13,312, to be supplied by importation; to which must be added 20,000 more, purchased by the French government in the present year.

Recueil de Méd. Vét.

It is an old saying, that "there is nothing new under the sun." Some of our veterinarians seem of late to be endeavouring to prove the truth of this by their frequent references to antiquated authorities. We found fault with Mr. Vines, a little while ago, for quoting so often from, and seeming to pin his faith so much on the sleeve of some of these old writers. He is eternally referring us to Solleysel. We will amuse our readers with a short summary of Solleysel's opinion of this said disease of glanders. Really, if Mr. Vines' book were not, so far as pathology is concerned, a thousand times better than that of his favourite author, Le Sieur de Solleysel, querry to the French king, it would not be worth our readers' attention or our review.

Chap. 18, page 28.—*Of the Glanders.*

The glanders is a flowing or running at the nostrils, of phlegmatic, tough, white, red, yellowish or greenish humours, which are sometimes derived from the spleen, almost always from the lungs, rarely from the liver or kidneys. The thinner humours find a passage through the cœliac vein, or the passages of respiration; and the thickest are carried to the throat, where they fall into a little receptacle between the two jaw-bones, and from thence by degrees dilating themselves, they form and nourish the kernels that are conspicuous to the eye: and the rest of the humour flows out of the nostrils, and discovers the nature of the disease.

These thin streams alter the very substance of the brain, and, being condensed or thickened by the natural coldness of that part, produce a humour of the same nature with aquafortis, which by its acrimony irritates the parts, and augments the ulcer; from whence proceeds that troublesome flux of humours through the nostrils. And whereas the two jugular veins furnish and communicate a great quantity of blood to the brain, the substance of which is already altered by the malignant vapours that glide thither perpetually through the cœliac vein, as to the head of an alembic, the blood, instead of being further purified, according to the established order of nature, is corrupted, and from thence falling upon the lungs, heats them, and being rendered incapable of performing its appointed task, to nourish and refresh that part, serves only to augment the ulcers that are ready formed in it.

To begin the cure, you may, by way of precaution, take up the two veins in the neck, two fingers' breadth beneath the place where the horse is usually let blood. I advised you not to cut the vein between the two knots, because I have seen horses killed by so doing; for the knot slipping, it was impossible to find the end of the vein; and besides the motion of the blood is stopped as effectually by taking up the vein as by cutting it.

His ordinary drink must be prepared thus: melt two pounds of brimstone in an iron spoon, and, while it boils, throw it into a pail of water; then take out the brimstone, melt it again, and cast it into the same water, which the sick horse must drink; for the water will retain the sweet and balsamic salt of brimstone, which is the balsam of the lungs. It is a most certain rule, that a horse should never be purged while he voids matter at the nose; for a purging medicine may throw him into this distemper, though he were free of it before. We must follow nature in the cure of diseases, and not compel her to change her course or to submit to one that is opposite to that which she has already taken, as purgatives is in the present case. It is true, most farriers observe that method; but I am fully convinced that it is very dangerous, and oftentimes fatal. Take four spoonfuls of strong vinegar, and as much good aqua vitæ; dissolve in them a drachm of treacle above two years old, and add a scruple of white hellebore in powder, and two grains of powder of long pepper; mix them altogether, and inject the mixture into the horse's nose, one half into each nostril; then walk him in his clothes, at a foot pace, for the space of an hour, suffering him to snuff the ground with his nose, and he will infallibly cast forth abundance of matter.

THE SYMPTOMS OF PLEURISY.

By M. DELAFOND, *Preparatory Lecturer on Pathology in the Veterinary School of Alfort.*

M. DELAFOND presents the "Recueil de Médecine Vétérinaire" with a long list of cases of acute and chronic pleurisy, and which he afterwards abridges in a very ingenious and useful way. Our readers will not be displeased with his account of the symptoms of these yet scarcely recognised diseases. They will not, perhaps, agree with every statement, and some will appear to be not a little fanciful, but they will duly estimate the value of the paper: and they will do well to turn to the briefer, but yet more graphic sketch of Mr. John Field, in THE VETERINARIAN, vol. ii, p. 118.

Pathognomic Symptoms of Acute Pleurisy.

A. *Commencement.*—General rigor or shivering; skin cold; pains in the chest, which cause the animal to crouch or lie down and look at his flanks. These symptoms are followed by increased heat of skin, and sweating at the flanks and the inside of the thighs. Respiration more or less accelerated; inspiration always short, sudden, unequal, interrupted or cut short; expiration more developed, irregular, and also cut short; the expired air of its natural temperature; cough unfrequent, short, and also interrupted; the artery full; pulse quickened, hard and

concentrated; the respiratory murmur feeble, sometimes accompanied by a slight grating in the superior region of the chest; resonance always distinct. The increased sensibility of the walls of the thorax rendered evident by tapping or pressure on the sides. The symptoms resembling those of slight colic, and the shiverings last only ten or fifteen hours; the others continue from twenty-four to forty hours, when the pleurisy terminates in delitescence or deposition.

B. *Delitescence**.—This may be promptly obtained by placing the animal in a condition opposite to that which produced the disease. It is known by the prompt and regular diminution of all the symptoms, and by a return to the natural state of all the functions,

C. *Depositions—False Membranes.*—When the quantity of liquid effused is small, and no gas mingles with it, it is difficult to ascertain its existence in the larger animals. In smaller animals, the absence of the respiratory murmur, and the grating sound being more easily detected at the inferior region of the chest, render the effusion probable; and if gaseous products are accidently mingled with the liquid, a slight gurgling noise will indicate its presence in the lower part of the chest. In most small animals, as in the dog, the effusion may be evidently recognised, by first exploring the lower region of the chest, and then placing the animal on its back, and exploring the superior region, which is now become the lower. If in the first position there was absence of respiratory murmur, and gurgling and grating were heard on the lower side, and on reversing the animal these peculiar sounds were likewise reversed, the case would be sufficiently plain, for the fluid would always descend by its specific gravity, and the lungs would float on its surface.

If the quantity of fluid is considerable, or exceeds eight or ten pounds, the grating and the absence of the respiratory murmur, and not preceded by a crepitating wheezing *(râle)* in the inferior portion of the breast, and the resonance, and the loudness of the murmur in the superior part, would render the existence of effusion probable.

The accumulation of the effusion is known by the continuance of these results: the want of the respiratory murmur will gradually spread up the side, and become more circumscribed, and stronger at the superior part of the chest, and a remarkable rubbing noise will begin to be heard about the middle of the

* *Delitescence*, among French pathologists, usually designates the sudden disappearance of inflammatory action, in opposition to the slow process of resolution. M. Delafond, however, seems to affix to delitescence the meaning of resolution, while of resolution he gives a very different account.

chest. The existence of false membranes, and of fluid, is probable whenever we hear a sound resembling the gurgling in decanting a liquid from a bottle, either at the lower or middle portion of the chest. This sound is circumscribed. It attends both inspiration and expiration, but is not always present.

The other pathognomic symptoms which accompany this stage of the disease are, that the cough is still unfrequent, suppressed, and interrupted—the breath is of its usual temperature, or even lower; the pulse remains quick, small, and hard—in a few cases, however, it becomes soft; the inspiration is fuller and laborious; the walk indicates pain; after the slightest exercise the respiration becomes much accelerated, and the animal is forced to stop. In the stable, the horse is ordinarily standing, or he only lies down for a little while on the side on which is the effusion. Death is preceded by symptoms of suffocation, attributable to the difficulty of maintaining both the longer and shorter circulation. The respiratory murmur becomes feeble; the grating appears at the superior portion of the chest; and a rubbing sound, stronger as the lung is more compressed by the fluid which prevents it from dilating, is heard in the superior region. The animal has an anxious, imploring countenance, is continually shifting his position, hesitates long in the act of lying down—at length, unable longer to support himself, he falls rather than lies down, he rises and falls a few times, and then dies suddenly of suffocation.

We believe that the sound which Laennec has described under the name of bronchial respiration, and which he compares to that which the air produces in traversing a tube of a certain diameter, is that noise so remarkable and which we have called rubbing *(frottement)*, and which is so evident in domestic animals.

D. *Resolution—Re-absorption of the effused liquid, the product of pleural inflammation—Organization of false membranes.*—The re-absorption of the effused fluid is indicated by the slow and continued diminution of the grating sound, and the return of the respiratory murmur to the lower part of the chest, by the cessation of the sounds produced by the fluid—the absence of the *frottement*, the gradual return of the respiration to its natural state, the softness of the artery and the pulse, and the animal quietly laying himself down to rest. The re-absorption is slow, in proportion as the quantity of fluid is considerable, and the false membranes numerous and thickened. It is on account of this last circumstance that a long state of convalescence exposes the animal to a fatal relapse, and that the flanks long continue to beat irregularly. In general, the horse grows thin, and a husky cough is heard, and continues a very long time.

The functions of the skin being gradually reestablished, it becomes supple, and the animal begins to re-acquire fat in proportion as the coat becomes sleek and glossy.

We have never seen pleurisy terminate in gangrene. Hurtrel d'Arboval says that this termination will be probable when the symptoms have succeeded each other with great rapidity, and when, in spite of all our care, death succeeds about the fourth or fifth day. He adds, that gangrene is generally preceded by a bloody or yellow-coloured effusion. It remains to be ascertained, whether by auscultation or percussion we can distinguish the approach of this fatal winding up of the disease. Effusion existing so early as the fourth day would render it probable; but it is only when there is gas in the thoracic cavity, indicated by a strong resonance, and other symptoms of gangrene of the internal viscera, that we can venture to predict this fatal, but, happily, rare termination of the disease.

Pathognomic Symptoms of Chronic Pleurisy.

E. *Chronic pleurisy—Chronic effusion—Hydrothorax.*—We unite the pathognomic signs of hydrothorax to those of chronic pleurisy, seeing that in the majority of cases hydrothorax is the symptom or the consequence of the continuance of this malady. It is only in a few cases that hydrothorax follows other diseases, as affections of the heart or the larger bloodvessels, or chronic pneumonia, or dropsy of the abdomen.

In all the domestic animals, loss of flesh, dryness and heat of the skin, dull colour of the hair, paleness of the mucous membranes, serous infiltration of them, debility, are the symptoms which generally accompany serous effusions: they would, to a considerable degree, confirm our diagnostic of the union of chronic pleurisy with dropsy of the chest, but they would not assure it, so that we must turn our attention to various local symptoms. The inspiration is prolonged—the expiration short and irregular; absence of the respiratory murmur in the inferior part of the chest; increase of it, and distinct resonance in the superior part. These symptoms will likewise indicate the progress of the effusion. The sound produced by the liquid, properly speaking, will rarely be found; it will often consist only of a sort of gurgling, or rather the dead sound of a liquid shut up in a cask. In smaller animals, the absence of the respiratory murmur can be changed and displaced at will, by altering the position of the animal in the way already described. If, in the dog, the effusion exists only on one side, there will be a contrast in the symptoms. The side on which the effusion is will only yield a dull resonance, and the respiratory

murmur will not be heard, while the opposite side will afford a clear resonance and a distinct murmur. Cough is rare, always small and weak, and without expectoration; the pulse small, hard; in a very few instances, however, soft. All the symptoms, except those furnished by exploration of the chest, will display a remarkable exacerbation at night, and constituting the fever improperly known among us by the term *hectic.*

In the larger animals, and especially those of a lymphatic temperament, the legs frequently swell, œdema appears, and slowly spreads under the chest; it sometimes reaches the belly, and advances even to the scrotum. At this period especially exercise renders the respiration laborious, and the animal is compelled to stop, from a feeling of suffocation. The side in which is the effusion is perceptibly rounder than the other, and it does not always sensibly contract when the fluid has been re-absorbed. The fluid never, as has occurred in the human being, opens for itself a way of escape by penetrating through the intercostal muscles.

F. *Pneumothorax.*—While any gas is associated with the effused liquid, its presence is betrayed by a strong resonance on one or both sides of the chest, and this without any respiratory murmur or crepitating sound. There is evident bubbling of a liquid, with a succession of pectoral sounds, known in human medicine under the names of the metallic ring, and the cask-like sound *(respiration amphorique.)*

A complete Table of the Diagnostic Symptoms of Pleurisy and Pneumonia.

ACUTE PLEURISY.	ACUTE PNEUMONIA.
Commencement of the inflammation.—Shivering, generally accompanied by light colicky pains, and followed by general or partial sweating. Inspiration always short, unequal, interrupted; expiration full; air expired of the natural temperature. Cough unfrequent, faint, cut short, and without expectoration. Artery full. Pulse quick, small, and wiry.	*Commencement of the inflammation.*—General shivering, rarely accompanied by colicky pains, followed by partial sweats at the flanks and the inside of the thighs. Inspiration full, expiration short. Air expired hot. Cough frequent, hard, frequently followed by slight discharge of red-coloured mucus. Artery full. Pulse accelerated, strong, full and soft.
(Auscultation.) Respiratory murmur feeble, or accompanied by a slight rubbing through the	*(Auscultation.)* Absence of respiratory murmur in places where the lung is congested;

whole extent of the chest, or in some parts only.

(Percussion). Slight dead grating sound *(Matité)*. Distinct resonance through the whole of the chest, and pain expressed when the sides are tapped or compressed.

Terminations.—1. *Delitescence.* Cessation of pain; moderate temperature of the skin; sometimes profuse general perspiration. Respiration less accelerated; inspiration easier and deeper. Pulse fuller and softer. Breath of the natural temperature. Return of the natural respiratory murmur and resonance. The walls of the chest cease to exhibit increased sensibility.

2. *Effusion, false membranes.* Inspiration more and more full.

(Auscultation and percussion.) *Matité* and complete absence of the respiratory murmur, with the crepitating wheezing, always at the bottom of the chest; sometimes a gurgling noise. Vesicular respiration very strong in the upper region of the chest, or in the sac opposite to the effusion.

(Continuance of the effusion.) Matité and absence of the respiratory murmur gain the middle region of the chest, following the level of the fluid. These symptoms may be found on only one side, a circumstance of frequent occurrence

feebleness of that sound in the inflamed parts, with humid, crepitating wheezing. The respiratory murmur increased in the sound parts.

(Percussion.) The dead grating sound confined to the inflamed parts. Distinct resonance at the sound parts; increased sensibility of the walls of the chest slight, or not existing at all.

Terminations.—1. *Resolution.* Temperature of the skin moderate. Sometimes profuse partial sweats. Laborious respiration subsiding; inspiration less deep. Artery less full. Pulse yielding. Breath less hot. Gradual and progressive disappearance of the crepitating *râle.* Slow return of the resonance.

2. *Red Hepatization.* Respiration irregular and interrupted.

(Auscultation and percussion.) *Matité* and circumscribed absence of respiratory murmur, without any determined place; in one point, or in many distinct parts of the lung. Respiratory murmur increased in one or more of the sound parts of the lungs, or in the sound lung if only one is inflamed.

(Passage to a state of gray induration.) The absence of respiratory murmur and *matité* equally indicate extensive hepatization of one lung, a circumstance, however, of rare occurrence. When the induration is of both lungs, and equally so,

in the dog, but rare in other animals. The respiratory murmur increases in the superior region of the chest, or on the side opposite to the effusion. Inspiration becomes more and more prolonged. Breath always cold. Cough not existing, or rarely, and always suppressed and interrupted. Exercise producing much difficulty of respiration.

Resolution, or re-absorption of the effused fluid, and organization of false membrane, the consequence of pleurisy.—Slow but progressive disappearance of *matité*, of the absence of the respiratory murmur, and of the sounds produced by the fluid. Diminution of the force of the respiratory murmur in the superior part of the chest, or of the lung opposite to the sac in which the effusion exists. Gradual return of the respiratory murmur to the inferior part of the chest. Inspiration less deep, and returning to its natural state.

CHRONIC PLEURISY WITH HYDROTHORAX.

Inspiration always deep, expiration short. Cough dry, sometimes with expectoration; frequent or capricious; always absence of complete respiratory murmur in the inferior portion of the chest. Sometimes the gurgling noise during inspiration and expiration. *Matité.* Strong respiratory murmur in the superior portion. In dogs these symptoms sometimes have the respiratory murmur remains the same, the inspiration remains the same, except that they become irregular. The cough dry or humid, frequent, and sometimes varying. Exercise accompanied by difficulty of respiration, without dyspnoea.

Resolution, or re-absorption of the products of inflammation of the parenchymatous substance of the lungs (red hepatization.)—Diminution of the force of the respiratory murmur in the sound parts. Cessation of the crepitating wheezing. Slow return of the respiratory murmur where it had ceased. Respiration ceases to be irregular or interrupted, and returns slowly to its natural state, or it remains interrupted. This indicates the passage from red to gray induration.

CHRONIC PNEUMONIA.

(Grey induration.) Inspiration or expiration interrupted. Cough unfrequent; suppressed; rarely with expectoration; always interrupted. Complete absence of respiratory murmur. *Matité*, in one or more circumscribed but not determined patches.

(Softening of the induration, ulcerations, vomicæ.) Cavernous circumscribed roll; mucous, and wheezing mucous *râle* in

existence only on one side of the chest. The mucous membranes are infiltrated; serous infiltrations on the lower part of the chest and belly; sometimes of the scrotum or the inferior extremities; generally of the fore legs. The animal lies down frequently, and dies of suffocation.

the bronchiæ; discharge from the nostrils of purulent matter, white, gray, or black, and sometimes fœtid. Paleness of the mucous membranes. The horse seldom lies down, and never long at a time. Death by suffocation, when the matter proceeding from the vomicæ or abscesses obstruct the bronchial passages, or by the development of an acute inflammation engrafted upon the chronic one.

Review.

Quid sit pulchrum, quid turpe, quid utile, quid non.—Hor.

The Voice of Humanity, for the Communication and Discussion of all Subjects relative to the Conduct of Man towards the inferior Creation. Published quarterly, price 1s. J. Nisbet, Berners Street.

The fourth number of this most praiseworthy and well conducted periodical has just been received. We are almost ashamed of ourselves when we think that we have not earlier noticed it. We can never forget the observation of Sir W. Blizard at one of the College dinners,—that our professional reputation could only be founded on the union of science and humanity; and we do hope and believe that co-equal with, or even superior to a regard for our reputation and the interest of our employers, is an earnest desire to lessen the sufferings and add to the enjoyment of the noble and useful animals about which we are employed.

The object of this publication is well expressed in its title: a consideration of the relative duties between man and his quadruped slaves, and a vindication of their rights, to whom we owe so many of our pleasures, and whom we so cruelly abuse. There are exposures of many practices systematically and generally prevalent, the nature and character of which many had been too indolent or too selfish duly to consider, but which, viewed in their true character, make us almost ashamed of ourselves; and

there are many beautiful appeals to our interest, our reason, our feeling, our moral responsibility, which few of our readers, we think, could resist.

If the matter is now and then carried a little too far, in the recommendation of pools of water in our streets for dogs, as a prevention of rabies; in the mistaken reprobation of the manner of converting those animals to a useful purpose in the drawing of trucks; and in the introduction, we are persuaded, of some exaggerated accounts of experiments on living animals, a point, we acknowledge, in which some of our best physiologists have been far too culpable; yet there is so much that is good, and the cause is so good, that we cordially recommend this periodical to the notice of our readers.

The following anecdote of Majendie we do not believe to be authentic:—

"A Blenheim spaniel was brought upon the table. The doctor patted it, when it put its paws upon his shoulder. 'You see,' said M. 'that we are good *friends*.' He began by cutting off the hair with scissars, close to the neck, while the dog made several attempts to lick the operator's face, and to play with the scissars: he then called two assistants to hold the dog. 'It is singular,' said the doctor, 'that this breed never bite;' and he then began to dissect from the jaw-bone to the point of the shoulder, pausing at intervals to name the muscles, and to pat the agonized dog, who looked with supplication at his tormentor, and licked his hands!"

But that which is found in No. II, page 65, we know to be true:—

"When we called at the house of Mr. S., we found him about to operate upon a young terrier dog. He told us he would prove that the bleeding of the largest artery could be stopped by *twisting* it, instead of making *a ligature* in the usual manner. He instantly muzzled the little victim, and then cut down towards the large artery of the thigh; which having divided, he stopped the bleeding of this bloodvessel by twisting it. The experiment having answered, I proposed to have the cut healed, and the dog taken care of. Mr. S. said he had much more to shew. Afterwards this monster (for I cannot call him a man) cut off the thigh at the *hip joint*, and twisted the bloodvessels; he then cut off the entire shoulder from the ribs, observing that he had often *removed* both thighs and both shoulders, and that the dog had lived some hours; but he was sorry to say that he feared this dog would not survive to have the right shoulder taken off:—and he was right; for the dog died before he could be turned on his side for the operator to get at the opposite shoulder."

The account of "White Veal," we know to be in many cases

too true:—"Calves are those unfortunate animals which, in this Christian country, are doomed to 'die more painfully, that man may live more luxuriously.' We have received different heart-rending statements respecting the cruelties practised upon them, which commence immediately as they enter the slaughter-house, and terminate only with the last agonized groan. The preparatory bleedings, often repeated twice a-day, are so profuse, that the calf falls down on the ground from faintness and exhaustion. Instead of pity or compassion in the breast of a slaughterman, the treatment that ensues is pinching and twisting the tail, and beating or kicking it, to make it rise. The average time, which varies, from the *convenience* and *caprice* of the butcher, between the calf leaving the dairy to enter the slaughter-house and the termination of its sufferings, is four days. Some of our correspondents, who reside near slaughter-houses, state that, day by day, they can recognize the different degrees of exhaustion, from these bleedings, in the altered sound of their moans, becoming more and more faint, till at length they express, unequivocally, the truest anguish. Complaining to the butcher is certain to induce an additional torment,—that of tying up the mouth closely with cord, or securing it by a buckle-strap, to pass round the head, which is usually adopted. When the ultimatum of torture arrives, suspended by the hind legs, with one hook run through the nostrils and another hook through the tail, to keep the neck in a bent position, to bleed to death, we find, in the bundle of communications lying before us on the subject, that some of the *fashionable* butchers are not behind our theoretical and experimental surgeons in ingenuity of torture, in their *manufacture* of *white* veal. We hear of the process of flaying or skinning being commenced *before* the calf is dead, to judge whether the flesh be sufficiently *white*, or whether, by checking the vital stream, it should bleed to death as slowly as possible, drop by drop, to produce a sufficient degree of *whiteness*. If our Legislature, disregarding the *convenience* and *caprice* of butchers, were to enact, that, before the termination of that day on which a calf was taken to the slaughter-house, it should be stunned by a blow upon the head, after which the throat to be cut—we should then have true reason to congratulate our country on the advancement of humanity."

The Dedication Extraordinary of a sermon against cruelty to animals, by the Rev. James Granger, to Thomas Drayton, one of the most cruel characters in his parish, may amuse our readers, while it tells well with regard to the point in question:—

"NEIGHBOUR TOM,

Having seen you exercise the lash with greater rage, and

heard you swear, at the same time, more roundly and forcibly than any of your brethren of the whip in London, I cannot help thinking that *you* have the best right to this discourse. But I am afraid, Tom, that I shall in some parts of it appear as great *a barbarian* as you seem to me a savage. If you find any hard words in it, come to my vicarage-house, and I will endeavour to explain them to you in as familiar language as you talk to your horses. For God's sake, and you own, have some compassion upon those poor beasts, and especially upon the fore-horse of your team. He is as sensible of blows as yourself, and ought not to have been so outrageously punished for turning aside into a road to which he was long accustomed, when you were fast asleep in your waggon. If you break any more whips upon him, and repeat horrid oaths, wishing yourself 'damned and doubly damned,' I shall take care that you are punished by a justice of the peace, as well as by your own master, in this world; and give you fair warning, that a worse punishment waits for you in the next, and that damnation will certainly come according to your call. I, however, hope better things of you, and that all your punishment will be in this life. But it is not likely that your soul, when separated from your body, will sleep till the day of judgment. According to the doctrine of a very sensible man, it may inhabit the *fore-horse* of a dray, and suffer all the pain that guilt and whip-cord can give. In a word, Tom, I advise you to fall on your knees, and ask God forgiveness for your cruelty and your oaths, and to be careful for the future not to sleep upon the road; to drink less ale, and no drams; so shall you save your whips, and your horses, your body, and your soul.

"I am, Tom, your friend and well-wisher,

"JAMES GRANGER."

Miscellanea.

DISEASES OF BIRDS.

IN Edinburgh we understand there are 500 medical practitioners on the human race, and we have dog-doctors and horse-doctors who have come out in numbers, but we have had no bird-doctors. Yet often, while the whole house rings with the cries of children teething, or in the hooping-cough, the little linnet sits silent on his perch, a moping bunch of feathers, and then falls down dead, when his lilting life might have been saved by the simplest medicinal food, skilfully administered. Surely, if we have physicians to attend our tread-mills, and regulate the food and day's work of merciless ruffians, we should not suffer our innocent and useful prisoners to die thus unattended.—*Blackwood's Magazine, Feb.* 1826.

THE

VETERINARIAN.

VOL. IV. JULY, 1831. No. 43.

Communications and Cases.

Ars veterinaria post medicinam secunda est.—VEGETIUS.

PATHOLOGICAL FACTS AND OBSERVATIONS.

By Mr. J. CASTLEY, *V. S.* 12*th Royal Lancers.*

No. IV.

"I shall studiously avoid controversial discussions when they can lead to no practical results; and theories unsupported by experience I shall altogether reject."—*Ballingalt's Lectures.*

OF THE PERIODICAL OPHTHALMIA OF HORSES.

I CANNOT help thinking there appears to be something like a general feeling of reluctance existing amongst the veterinary practitioners of the present day to entering into a free, full, and fair discussion of this subject. A subject which, I confess, I approach with a mixed sensation of diffidence and humiliation;—of humiliation, from the defective state of our knowledge. If it has been said of glanders that that disease is "the opprobrium of our art," may not this epithet, with equal propriety, be applied to the malady in question? For I believe no man can fairly say he has ever yet succeeded in curing a case of the true periodical ophthalmia. We can check and palliate the evil; but, let the truth be told, the present state of our knowledge does not enable us to arrest its progress. It by no means, however, follows, because we have not hitherto been fortunate enough to discover a satisfactory remedy for this complaint, that it is, therefore, to be considered incurable. On the contrary, it only, perhaps, tends to shew that we have yet much to learn, and that veterinary science is, probably, still in its infancy. In England, indeed, where the art has been much stimulated and encouraged, its growth has been abundantly luxuriant; but has it not advanced rather with a rapid than a firm step? And may we hope it is not destined, even there, to experience a premature decline?

I do not pretend to have any thing absolutely new or extraor-

dinary to offer upon the subject which I have chosen for a few observations on the present occasion; but as it is a point of our practice that appears to be still involved in much obscurity—a disease of a Protean character, whose true nature it seems difficult to grasp—it appears to me that it must always be useful to collect facts; to trace predisposing and exciting causes; and, in short, to note every circumstance relative to such a complaint; as such investigations afford the best, if not the only, means of arriving at a satisfactory conclusion.

This is a species of ophthalmia quite peculiar to the horse, and differing essentially from any variety of the disease bearing that name, to which the human eye, or, as far as we know, that of any other animal is liable; inasmuch as that it invariably puts on an intermittent character. It occurs by paroxysms; and the means employed to relieve or cut short one attack of inflammation, however apparently successful at the time, do not appear to have the least effect in preventing its recurrence, or of arresting its final termination in cataract.

Its periodical character may, therefore, be said to constitute its most remarkable feature; and this circumstance is so striking in itself, that it seems always to have attracted particular notice at all times and in all ages. Hence we constantly find in old books of farriery the terms "moon blindness," "lunatic eyes," designating the complaint. The old practitioners, many of whom we must allow were men of observation, seeing that the disease generally pursued a regular course, and that the attacks of inflammation constantly recurred after certain intervals, naturally enough concluded that these were influenced by certain states and changes of the moon. "Now they be called moon eyes," says our earliest author, old Gervaise Markham; "because, if the farrier do observe them, he shall perceive that at some times of the moon the horse will see very prettily, and at some times of the moon he will see nothing at all. Now the signs thereof are, when the horse's eyes are at the best they will look rather yellowish and dimme; and when they are at the worst, they will look red, fiery, and angry." I have quoted this from Markham's "Masterpiece," to shew the origin of the absurd terms "moon blindness," "moon eyes," &c. we so often meet with. But with almost equal absurdity in more modern times we have heard the malady in question designated "the gouty inflammation of the horse's eye;" and this in reference only to its intermittent character; for its hereditary tendency, by which, indeed, it may fairly be said to lay claim to some analogy with gout, has not, I think, until very lately been admitted. I recollect, when at the Veterinary College, observing to our worthy Professor, Mr. Cole-

man, that the practical breeders of horses in Yorkshire considered this complaint in a great measure hereditary; and for that reason they always had a great objection to breeding from either a horse or mare that had gone blind: they said it was almost sure to "run in the stock." I was laughed at, I remember, for giving utterance to such a vulgar and obsolete crotchet. Many of those, however, that were then present imbibing the Professor's ingenious theories, have since learned to think differently. But in general I have remarked, that those persons who have begun with theory, and nothing but theory, for their guide; who have, in early life, devoted all the energies of their minds to hypothetical reasoning, and are become enthusiasts in this way, seldom attain to any considerable proficiency in practical knowledge. They seem always striving to pervert facts, to bend and twist them to their own preconcerted notions; not recollecting that theories are continually changing, or going into the most profound oblivion, while facts will remain for ever the same.

If I remember right, Mr. Coleman used frequently to say, "I know of no such thing as hereditary disease—strictly speaking, no disease can be called hereditary:" and, perhaps, in a literal sense, this position is tenable. We cannot, however, doubt what amounts, I think, to much the same thing,—that a strong disposition to particular diseases constantly does run in families. It may be very true, that the horse living in a state of nature is not at all subject to periodical ophthalmia; and it may also be very true, as has been asserted, that if a man born of gouty parents were to live the life of a savage, or of the wandering Arab of the desert, he would never be liable to be attacked with gout. Yet this does not alter the every-day fact which is constantly impressed upon the most common observer, that, under other circumstances, certaiu disorders commonly do descend, transferred and entailed, as it were, from father to son, and from one generation to another. It only, perhaps, tends to shew, that an artificial state of animal existence is the principal, the most general, exciting cause of all the maladies that "life is heir to." Now I care not whether this be called hereditary disease, or only an original predisposition; it amounts, I say, to just the same thing: and I venture to affirm, that this is by far the most frequent origin of the complaint in question, the periodical ophthalmia of horses. But while I assert this, I am ready to admit, that it also arises from a variety of other causes, quite adventitious, and unconnected with this source.

In a complaint of this nature, which is sometimes two or three years in running its course, a regiment of cavalry, perhaps, affords the best opportunity for observation; where three and

four years old horses are continually introduced, and where they remain as long as they are fit for service. Here we have frequent opportunities of watching the progress of the disease from beginning to end; whereas a man in private practice can seldom have such an advantage. He is often consulted in cases of this sort; he often has to treat a paroxysm of inflammation of the eyes; but he seldom sees any thing more of the animal afterwards. It is only, therefore, in large establishments, where the attendance is constant, that we are to look for opportunities of frequently observing this complaint through its whole course.

It may be worthy of remark, that the malady we are speaking of appears to be more prevalent in some countries than in others. According to my own experience, it is much more frequent towards the north than in the southern parts of Europe. In Spain and Portugal it is a complaint of but rare occurrence; whereas in France and England it prevails to a considerable extent; but certainly most of all in Ireland. I feel no hesitation in saying, that there are far more blind and half blind horses in Ireland than there are to be found in any other country, proportionably to its size, in Europe; and I think this is to be accounted for on the score of hereditary predisposition.

In England, as I have hinted before, more especially in Yorkshire, the farmers have been observant of the fact, that a disposition to "bad eyes is apt to run in the stock;" and they avoid, as much as possible, breeding from horses and mares of this description. In choosing a sire, they very properly consider it a great recommendation if he can be said to be perfectly sound, and free from all natural defects and blemishes. In Ireland, however, they seem to pay but little attention to this point. The circumstance of a horse being blind, or going blind, appears to be no detriment to him as a sire: he will have just as many mares put to him as if he had no defect at all; and nothing is more common than to see a horse of this sort covering, whilst they frequently breed from a mare merely because she is blind, and, as they say, "fit for nothing else."

The first time I was in Ireland, when quartered in the county of Tipperary, I recollect being particularly struck with the frequency of diseased eyes among the horses of that country; and looking about me for some cause, I soon perceived several blind, or half blind stallions covering: one in particular, called *Chanticleer*, I recollect seemed to be in very great repute. He was then only four years old; but his eyes had already suffered repeated attacks of inflammation, and were in progress towards blindness. Yet this circumstance did not seem in the least to stand in his way as a sire; for he got quite as many, if not more,

mares, than any other horse in the country. There was at that time living in the town of Tipperary a person in the form of a farrier, who was famous for the operation of what is called "*putting out one eye to save the other:*" and I was told by a gentleman residing in the neighbourhood, that on one occasion, this man had actually performed that operation *twenty-nine times* in one week. Now, although it is difficult to credit this statement to the full, yet, no doubt, there was a good deal of truth in it; and I will venture to say our Tipperary friend would never want employment as long as the people of the county took no more care to avoid breeding from animals with diseased eyes than they did at that time: for I repeat, if there be any such thing as hereditary disease,—if gout and scrofula are to be called hereditary complaints,—so also is the periodical ophthalmia of horses. My friend Mr. Watts, of Dublin, however, informs me (and he is very good authority, having been long in the habit of examining more horses than, perhaps, all the rest of the profession in Ireland put together), that there are not half so many horses brought for his inspection with diseased eyes that there used to be some ten or twenty years ago. As far as my own observation goes, the evil, I think, has much diminished within the last ten years: and yet so lately as the last Mullengar fair I had occasion to witness two cases of blindness in colts only three years old each; one of which I made particular inquiry about. He belonged to a respectable farmer, who said the colt's eyes first became bad at grass, *and before he had ever been housed:* at first, they thought it might be occasioned by the bite of another horse; it apparently got well, but returned again and again, until the animal became blind. Now it is difficult to account for this upon any other principle except that of hereditary tendency or predisposition. The good people of Ireland, however, I am happy to find, are becoming much wiser in this respect.

But while I say I contend that the periodical ophthalmia commonly arises from the cause I have mentioned, I freely admit that it has various other origins, quite adventitious, and independent of this. White enumerates the following: "Standing still in cold wind or rain, when the animal has been heated, or is sweating from violent exercise; or also plunging him in a river when sweating and exhausted by exertion; or tying him up at a stable door whilst his legs and thighs are being washed with cold water." Now all this may be referred to one head; viz. checked perspiration. My own experience, however, does not bear Mr. White out in this speculation: I cannot say that I have ever seen even one single well-marked instance of the malady in question arising or originating from this cause. But I have several times

noticed it clearly supervene upon some other disease, or some great constitutional disturbance.

In a former paper (No. I of the Observations on Metastasis of Inflammation, vol. iii, page 162) I have stated, that I had an opportunity, while with the army of occupation in France, of witnessing many well-marked instances of the periodical ophthalmia supervening upon repeated or long-continued attacks of diabêtes; a complaint which we found more or less prevalent all the time we remained in that country; and which was occasioned by feeding our horses upon corn generally of an unsound quality, furnished by the contractors employed by the French government; having been rendered so either in the transport, or by being violently heated while in store. Badly kiln-dried oats is also an unwholesome food for horses, which will often induce diabêtes, and which will sometimes be followed by the same consequences.

Inflammation of the eyes, and blindness, have been known to follow some great exertion—some extraordinary day's work—some violent exhaustion: and I myself have seen an instance or two of its making its first appearance, in cases of great debility or inanition from excessive bleeding. Perhaps any great constitutional disturbance may occasionally give rise to it.

High feeding, and forcing the animal to breathe an impure atmosphere, are, without doubt, amongst the most common *exciting causes* of this complaint. Upon the latter of these circumstances, viz. hot, foul, and badly ventilated stables, Mr. Coleman always lays, and with much reason, a very great stress. This *(a poisoned atmosphere)* he takes to be the principal, if not the sole cause, not only of inflammation of the eyes, but of almost every other malady to which the domesticated horse is subject. About twenty years ago all the barrack stables in Great Britain were ventilated agreeably to his suggestion; a measure which has been attended with the greatest benefit to the service: and the Professor deserves the more credit for this step, as in carrying it into effect he had to contend with old established habits and deep-rooted prejudices. I, for one, can bear witness, that since that period the number of cases of acute disease, as farcy, glanders, inflammation of the lungs, &c., have very much diminished in the barrack stables. These things, however, will sometimes happen in the best regulated families.

We are careful to keep up a free ventilation in the troop stables; and the result, I say, has been satisfactory. But over the officers' stables we have little or no control: "a man can do what he likes with his own." And here we have always experienced great opposition, and obstinate resistance to our system of ventilation.

The officers' stables are, I think, generally so closely shut up as to present a remarkable contrast with the way in which the troop horses are kept. And one is naturally led to expect we should find a great deal more disease in the one than the other. This ought to be the case; but in this conclusion we are not sufficiently borne out by facts. The experience of the last twenty years, I must confess, has not shewn that there is, in any considerable degree, proportionally more disease (inflammation of the *eyes not excepted)* amongst the officers' horses than amongst the troop horses of a regiment.

For my own part, I always have been, and always will be, a great advocate for free ventilation. And notwithstanding this provoking fact staring us in the face, I must say, I think it has been productive of the greatest benefit possible both to the service and to the world at large: like every thing else, however, it may be over-done. By pushing it to excess we are apt to create a resistance, and to render it altogether unpopular. There is moderation in all things; and the abuse of any thing will bring it into disrepute and discredit. But as I have already, in a former paper, delivered my sentiments, in a practical point of view, upon the important matter of ventilation, I shall not here be tempted further into the subject. And I shall now take my leave for the present, with the intention, at no distant period, of resuming the thread of these observations.

[To be continued.]

ON BREEDING.

By Mr. J. KARKEEK, *V.S., Truro.*

[Continued from p. 12.]

THE perpetuation of the species, and the preservation of the individual, being apparently with the Sovereign Architect of the world objects of peculiar interest, all living beings appear to be formed in relation to these great ends.

Human generation seems to know no annual variations; but most other animals, after puberty, are limited to particular times of the year, and the genitals undergo a periodical development for the purpose. The disposition to copulate in the horse species happens in the spring season; and at this period a considerable change in the appearance and manners of both sexes is very conspicuous. A fine and glossy tunic supersedes the rough and lengthened one of winter; their manes and tails are increased in length, their crests become elevated, and their

forms appear endowed with an increase of strength and beauty, as if nature, at this genial season, took a pleasure in lavishly adorning the bridegroom and the bride. At this season also a kind of impelling principle appears to pervade all their actions; for instead of being mild, placid, and gentle, they become bold, restless, and ungovernable. The strength of the sexual necessity in some animals is truly astonishing.

> " Not only man's imperial race, but they
> That wing the liquid air, or swim the sea,
> Or haunt the desert, rush into the flame;
> For love is lord of all, and is in all the same."

" A frog," says Blumenbach, " will continue to impregnate the ova, even after the removal of its head." The lioness, forgetful of her whelps, ranges the plain in quest of her royal lover; and the hitherto dormant and lethargic ass swims the wide torrent, and wanders miles in quest of a mate.

> " For love they force through thickets of the wood;
> They climb the steepy hills, and stem the flood."

When the stallion becomes acquainted with the horsing condition of the mare*, he becomes impatient and unmanageable. Virgil has given an inimitable description of the force of love in the horse, in words so expressive, and yet so modest, as not to offend the chastest ear:

> " Nonne vides, ut tota tremor pertentet equorum
> Corpora, si tantum notas odor adtulit auras?
> Ac neque eos jam fræna virûm, nec verbera sæva,
> Non scopuli, rupesque cavæ, atque abjecta retardant
> Flumina, correptos undâ torquentia montes."

> " The stallion snuffs the well-known scent afar,
> And snorts and trembles for the distant mare:
> Nor bits nor bridles can his rage restrain,
> And rugged rocks are interposed in vain:
> He makes his way o'er mountains, and contemns
> Unruly torments and unforded streams." POPE.

Such is the vigorous and irresistible impulse which Nature has planted in animals, in order that the great work of propagation might not be left to chance. " And so salutary is the moderate or seasonable performance of this act, that animals are found to be improved, both in health and strength, by it; but the line of moderation is not to be stepped over with impunity: preternatu-

* It is by the touch, ear, and eyes, in part, that these feelings become excited in men; but in animals the ear and eyes have little influence, the sexual instinct being chiefly brought into operation by the smell; as the presence of this influence on the system is always attended by the emanation of a peculiar odour from the body.

ral excitement of the organs, overstraining their function, never fails to shorten the term of their capabilities to renew their offices; and, if carried to excess, to prove highly injurious and destructive to the system altogether*." We are surprised that this circumstance never entered into the heads of the generality of breeders, who bring their mares into the neighbouring towns on market or fair-days to be served by stallions who are continually covering, on the average, a dozen mares in the course of twenty-four hours, during the season. It is extraordinary how men can expect such extra-exertions on the part of an animal, and not be surprised at the general failure of the mares. The frequent repetition of covering mares in such a constrained and prostituted manner (for it is a well-known fact that proprietors of such stallions are obliged to have recourse to stimulating food, and even drugs, to excite them to venery) weakens, after a time, the physical sensibility of the generative organs. Nature is ever perfect; and we plunge into difficulties and distress in proportion as we deviate from her established laws.

Another evil that requires to be *reformed* among the generality of farmers is, the practice of allowing their animals to breed at the early period of two years old. This is too early; for in our humble opinion both sire and dam ought to come to their full strength before they are bred from; for by breeding at so early an age they produce a weak and unhealthy progeny, that seldom or never arrive at maturity. Mares should never be bred from till four years old; and stallions would be better if deferred till five or six.

"The Bedouins," says Burckhardt, "in general do not allow their mares to breed until they have completed their fifth year." "The age," says Virgil, "for horses and cows to undergo lucina and just hymeneal rites, commences after four, and terminates at ten."

> "Ætas lucinam justosque pati hymenæos
> Desinit ante decem, post quatuor incipit annos."

If some of our breeders were to imitate the Bedouins and the Romans in this instance, it would be more to their credit, and we believe more to their profit, in the long run, than breeding from two-year old mares. We are assured that *early breeding* is productive of as much injury, and tends to deteriorate the breed of horses as much as *early breaking*.

> "Wouldst thou their courage and their strength improve—
> Too soon they must not feel the stings of love."

As to the duration of the formative process, though not exactly known, there seems to be no doubt that it is in all cases a short

* Percivall's Lectures.

period, varying in different animals, being in the large kind a process of much longer duration than in the smaller. The human fœtus is supposed to be elaborated in the course of five or six weeks; and the greatest part of its structure is most probably perfected in a much shorter period. The horse fœtus is probably elaborated in the course of six or seven weeks. We possess an embryo in our museum, about seven weeks old, contained in an ounce vial, which is perfectly formed in all its parts, head, limbs, and trunk; so that, diminutive as it is, we are ready to acknowledge it for our companion, our friend, and as one that

> "Holds a rank
> Important in the plan of Him who framed
> This scale of beings; holds a rank which, lost,
> Would break the chain, and leave behind a gap
> Which Nature's self would rue."

The term of gestation also varies in different auimals, being a process of much longer duration in the larger animals than in the smaller kind. In the elephant, it occupies a period of two years; in the horse, about eleven months; whilst in the Guinea-pig it lasts only three weeks.

The mare is supposed to carry her first foal longer than the succeeding. She brings forth in a standing position, generally by night, or very early in the morning. Indeed, it is a rare circumstance to see a mare cast her foal. Few animals are exposed to such little danger at birth. It is an extraordinary instance to hear of a mare producing twin colts; and we believe there never was an instance known of her bringing both forth alive.

Uterine gestation continues until the young one is protected at birth by a covering of hair; has eyes to see, and ears to hear, and limbs fitted to execute the purpose of locomotion. The duties of the mother at this period are, consequently, few in number, and easily executed. Her cradle is of the simplest kind, the young animal requiring only to be licked dry; and if it be supplied with milk, it is able, in a day or two, to frisk about its birth-place; and in a short time vies with, and even excels, the mother in speed. On the approach of parturition, which is indicated a few days previous by an enlargement of the udder, the appearance of milk, and the swollen state of the matrix, it becomes the duty of the breeder to place the mare in such a situation as will ensure the safety of the young one. There are always numerous situations on every farm where the climate is milder and less exposed than others. "Sheltered places, bosoms, nooks and bays," which may be appropriated to the mares with foals. And in cases where a valuable colt is expected, it

would not be amiss to imitate the prudent Bedouins in their care of the young one. "They never allow the foal, at the moment of birth, to fall upon the ground, but receive it in their arms, and so cherish it for several hours, occupied in washing and stretching its tender limbs, and caressing it, as they would a baby. After this they place it on the ground, and watch its feeble steps with particular attention; prognosticating from that time the excellencies or defects of their future companion*."

Having foaled, the next care is to provide the mare with the best and most nutritious grass, in order to increase the quantity and improve the quality of the milk. Should the foal have been dropped early, when grass is scarce, which is a common practice, particularly with those intended for the turf, in order to gain a couple of months in their age, the dam should be fed with bran mashes, oats, carrots, or turnips, till the spring grass arrives.

The *earlier, in reason*, the foal is dropped the better, from the advantage that may be derived from weaning the young animal before the spring grass has entirely disappeared; but to obtain this advantage, as well as the couple of months in its age, for the purpose of racing, breeders oftentimes sacrifice many a valuable animal. Youth requires warmth for the purpose of growth; consequently extreme cold should be avoided on its entrance into the world. The ill effects of cold on new-born infants are plainly shewn by M. Julio Fontenelle. "In Italy, of one hundred infants born in December, January, and February, sixty-six died in the first month, fifteen in the course of the year, and nineteen only survived. Of one hundred infants born in the spring, forty-eight survived. Of one hundred infants born in the summer, fifty-eight survived." The author attributes this surplus of mortality during the cold months exclusively to the practice of exposing infants to the cold a few days after birth. If we might, then, be allowed to reason from analogy, we would recommend breeders so to manage it, as to cause their mares to bring forth in the early part of spring, when they would be amply provided with food.

In most animals, the season of love and the time of gestation are so admirably ordered by Nature, that the progeny when born are well provided with the peculiar species of food upon which they generally live. The œstrum of the mare happens in the summer; she carries eleven months, and is generally delivered in the beginning of May. Sheep and goats come in season in the end of October, or beginning of November: they carry five months, and produce when the grass begins to spring. It was

* Burckhardt.

in this balmy season when the poet, naturally enough, supposed the world first rose to birth:—

> "When first man's iron race uprear'd its head,
> When first to beasts the wild and wood were given,
> And stars unnumber'd paved th' expanse of heaven."

Numerous instances could be brought forward to prove, that most animals in a state of nature, not excluding even the insect tribes, bring forth only at those seasons of the year when the weather and the food peculiar to the species are best adapted to the constitution of their offspring. The genial months of SPRING, appear to possess the happy medium between the two extremes of heat and cold, and will be found sufficiently early to enable the breeder to obtain for his colts the nutritious grasses of July and August, by weaning them earlier than is commonly practised. The generality of breeders wean their colts at Michaelmas, when the grass has lost most of its nourishment; but there is no occasion for keeping the colt so long on the mother as is usually practised. "The Arabs only keep the colt on the mother *thirty days*; after which it is weaned, and reared entirely on camel's milk, for the space of a hundred days*." In this instance we might also be benefited by imitating the Arabs. We cannot obtain camel's milk, it is true; but cow's milk would not be a bad substitute. Whatever attention and trouble breeders bestow on the young colt during the first two years, will be amply repaid him hereafter. The colt is placed on the globe tolerably perfect by the hands of the Creator; but he too frequently degenerates under the treatment pursued. We, therefore, beg to remind breeders of horses that, for the production of a good stock, it is necessary that "*all animals should be as well fed as bred.*" No animal will pay for starving: if it is not worthy of having proper food given it, it is by far better to get rid of it at once. We do not recommend, though, the richest and most luxuriant grass to be given to colts: this practice would be productive of more injury than feeding on an impoverished soil. The range of a firm, dry meadow, rather bare than luxuriant, with a proportionable allowance of oats morning and evening, is far more suitable for colts, till two or three years old, than too rich a pasture.

It is a common practice to feed colts, in the winter season, on turnips and potatoes: we consider this to be rather pernicious than otherwise. A moderate allowance of hay, bran, and oats, with a few carrots, would be far better.

The foregoing directions are given for horses intended for speed; but for purposes of draught only, where weight and size

* Burckhardt.

are desirable, let them have the most nutritious grass that can be obtained. Here we beg to refer our readers to our remarks on the effect of soil and climate on the dispositions and stature of animals. We there endeavoured to prove, that the varieties observed in the horse species were the effects of food and temperature; that in countries where the pasture is rich and always springing, animals grow to a prodigious size, but were, at the same time, characterised by an indolent, stupid appearance; whilst those that were inhabitants of dry light soils, were always better made, far more active, and possessed more vivacious and intelligent countenances. From these and other facts we drew an inference, that at a very early period of life an unchangeable predisposition to a certain temperament was produced in all animals by the powerful agencies of climate, soil, and manner of living. In thorough-bred horses we observed, that the vitality is more exalted, and the nervous system more preponderating, than in the heavy cart breed: their senses appear, as it were, more susceptible of impressions, and more easily excitable. But the most remarkable differences in their breed exist in a desire to please, and a spirit of rivalry which they shew when matched against each other.

"See the fleet coursers speed with lightning's force
Along the stated circle of the course;
Their eyes dart fire, their nostrils look like gore;
Swoll'n is each vein, distended every pore;
One spirit seems to urge them as they fly,
And that—*the spirit of rivalry*."

The natural ardour of race-horses, on some particular occasions, is extraordinary: they appear as if enlightened with a degree of human understanding. Witness their zeal, their patient, long-enduring submission, and self-immolation: we know not, we cannot conceive the sensations and instincts which are the main spring of such generous devotion.

The continual reciprocation of good offices, as well as the similarity of pursuits, in which the horse is associated with the rider, will do much towards improving this quality; but *education* alone will not accomplish it; it must chiefly be attributed to some impelling principle peculiar to the breed or kind.

This leads us to the latter part of our subject; viz. the education of the young animal, which at some future day we hope to accomplish: for the horse, however generous his blood, and graceful his limbs, who has never learned certain paces, and had his temper subdued to the intimations of the bridle, will never be victor in the race.

[To be continued.]

CASE OF ENTANGLEMENT AND STRANGULATION OF THE ILEUM.

By Mr. N. P. Leigh, *V. S., Bristol.*

In the early part of the present month, I was sent for to attend a well-bred aged mare, the property of a gentleman, a short distance from this city; but being absent from home on professional business, did not see the animal until 8 o'clock P. M., three hours after she was seized, and which occurred immediately on her being placed in the stable, having been ridden, and that very slowly, for two hours previously. On my entering the stable I found the mare labouring under violent spasms of the bowels, constantly pawing the ground, plunging, lying down, and also suddenly turning her head round to the near side with great anxiety: pulse forty, ears and extremities warm; she had staled, though a less quantity than usual; and two small watery evacuations from the bowels escaped before I arrived. Considering the case to be cholic or gripes, I immediately administered the usual antispasmodic medicines; which having afforded the mare no relief in three hours, I tried the effect of one ounce of laudanum in a pint of thin gruel, and a large clyster of salt and water, which soon came away without any feculent discharge. The violence of the disorder continuing, at 12 o'clock P. M. I ordered five quarts of blood to be taken away, and the following laxative draught to be administered: ℞ Glauber salts eight ounces, dissolved in a pint of boiling water; half an ounce of carbonate of soda; one pint of castor oil; and one ounce of sweet spirits of nitre. Clysters of thin warm gruel and a small quantity of salt every two hours; legs kept warm by bandages, and the abdomen rubbed with the hand, &c.

At 3 o'clock A. M. the spasms had abated, and the animal lay down in apparent ease, and so continued for four hours; when on visiting her again at 10 o'clock A. M. the pulse had considerably quickened, with a cold clammy perspiration extending over the whole body, head, and extremities; great uneasiness, constantly walking around the box, and quite insensible to every thing; half the laxative draught was again given, and blood abstracted to the quantity of two quarts, which aggravated more than alleviated the symptoms; and I immediately desisted. Large flannels dipped in very warm water were constantly applied to the abdomen, and afterwards the mustard embrocation. The mare getting worse, I suspected an introsusception of the intestines, and that mortification had taken place; and about 2 o'clock P. M., nine-

teen hours after the first attack, death ensued, preceded by the greatest agony.

Post-mortem Examination.—On opening the cavity of the abdomen, by making an incision from the ensiform cartilage of the sternum, through the linea alba to the pubis, and then to the transverse processes of the lumbar vertebræ (the subject being placed on her back), I discovered the ileum in a state of mortification, and distended with a dark bloody fluid, to the extent of nearly four feet. On cautiously removing the contents of the abdomen, and carefully separating the intestines, it appeared that the ileum had become entangled and strangulated, and with it was a tumour or diseased pendulous mesenteric gland twisted around the intestine, preventing the possibility of getting rid of the strangulation, and occasioning the mare's death.

The stomach contained a considerable quantity of soft food, with a slight appearance of inflammation; the large intestines were distended with hard fæces, and spots of inflammation on the villous coat: the other viscera were healthy.

On tracing the cause of this animal's death, I am of opinion that the primary symptoms arose from a distention of the intestines with flatulency or gripes, which was soon succeeded by the entanglement of the ileum by means of the gland above-mentioned, which was pendulous.

On the day following this mare's death, another valuable mare was similarly taken, but with less violence: by administering the laxative draught, and copious bleeding, in a few hours she was relieved. Another young mare had an attack; was treated as the former, and soon restored. Suspecting these symptoms to arise from the food, I inspected it, and found the hay very indifferent, and of a dark colour; the corn had been heated in the mow, was musty, and quite unfit for the provender of horses, and likely to produce these complaints. On my representing this circumstance to the gentleman, the hay and corn have been replaced by good, and the horses are well and free from disease.

Although, as Mr. Leigh states, in a private letter to us, that this case "corresponds with great exactness to one given in October 1829, by Mr. Goodwin," we value it the more on that account, as mutually corroborative of the accurate observation of these gentlemen, and forcing on the attention of veterinary practitioners a state of disease but a little while ago not suspected, and now scarcely recognised in our most imperfect and strangely limited and abbreviated nosology.—EDIT.

A CASE OF TETANUS.

By Mr. H. Christian, *V.S., Canterbury.*

Sunday, *May 8th*, a brown filly, three parts bred, four years old, had been ridden about sixteen miles on the Thursday, and turned out at grass on Friday night; Saturday she was dull and heavy; she was ridden sixteen miles more, but could not by any means be urged out of a walk. On Sunday I was sent to her, and found her pulse 90 and full; respiration quick and very laborious; conjunctiva and nasal membrane highly inflamed; stiff neck, nose stretched out, ears and tail erect, and she was unable to move across the stable: the spasms more particularly affected the loins and hind extremities. I gave ʒvi of aloes, and bled to 12lbs from the venæ saphenæ, which seemed to relieve her.

9th.—Pulse the same; do not perceive any material alteration. VS. 8lbs from the jugular, after which the violence of the spasm was very much abated.

10*th.*—Pulse and symptoms about the same. Ordered the following ball to be given night and morning: powdered opium ʒiij; powdered digitalis ʒj; and Venice turpentine, ʒiij.

The mare being unable to void her urine, I drew it off by a catheter about two gallons. Physic purges freely; and I continued the balls until Saturday. When she had had ten of them, I could perceive a decided change for the better, and she rapidly recovered: in about a month she went to work as well as ever. I should have stated, that I took particular care to keep her as warm as possible, and found it of considerable benefit. When the clothing was removed or the wind admitted, it invariably increased the spasm.

ON THE TREATMENT OF HOOVE IN CATTLE.

By Mr. Roberts, *South Molton.*

To the Editors of "The Veterinarian."

Gentlemen,

The object of my sending you this letter is to seek information, how far the following operation is resorted to in cattle, and the usual result. I trust some of the scientific and experienced practitioners who are in the habit of sending so many highly instructive communications to your useful periodical will oblige me by their opinions on it.

Some of your readers will probably recollect, in a former letter

of mine in THE VETERINARIAN, I confessed my entire ignorance of the diseases of cattle, as my whole life, from the age of fifteen to the present period, thirty-two, has been *alone* devoted to the disease of the *horse*, which I have ample reason to regret; and I doubt not such will be the case with many others who purpose establishing themselves in country practice, unless they make the diseases of other domesticated animals their objects of study at a proper time.

A friend of mine, about two months since, had a cow labouring under the effects of *hoove*. The distention of the abdomen was very considerable: he sent for a person professing that branch of the veterinary art called a cow doctor. At six o'clock P.M. bleeding was resorted to, without the desired effect: at seven the cow was thrown on her off side, when he commenced making a longitudinal incision on her near side, between the last *rib* and *hip*, by which a large quantity of gaseous fluid was extricated. He then introduced his hand through the orifice into the alimentary canal, and dragged therefrom, my informant states (whose veracity I can rely on), about two or three stable buckets full of food. *This operation lasted an hour.* Afterwards an adhesive plaister of some kind was placed over the external orifice. Three hours subsequent to this the cow died.

I cannot resist the inclination to give you a proof (if any be wanting) of the march of veterinary erudition in some places. The following is the verbatim copy of a note sent by another cattle practitioner to a friend of mine, a respectable druggist :—

"Mr B— sir plest to send me a drinsh by the barer for a bullock that hath coughd a child."

A sad expensive complaint, you will admit it must be, for *bullocks* to *cough children* as a substitute for *catching a chill.*

I am, Gentlemen,

Your most obedient servant,

J. ROBERTS,

V.S. to the N. Devon Yeomanry Cavalry.

AN ACCOUNT OF THE DISTRIBUTION OF PRIZES AT THE TERMINATION OF THE FIRST COURSE OF MR. YOUATT'S VETERINARY LECTURES.

By W. Y.

A BRIEF narrative of the close of my first course of lectures at the University of London may not be uninteresting to veterinary students, or even to practitioners, and to me the record is most gratifying.

In the weekly private examinations of my class, I had such repeated and satisfactory evidence of the attention of almost all, and the rapid improvement of many, that I wished to offer to those who would honour me by contending for them, a few trifling prizes, valuable only as tokens of their merit and my esteem.

The test of merit I determined should be, first, essays written without the possibility of referring to books or to notes, on such subjects as I should at the moment select. The class at that time consisted of thirty-two students, nine medical practitioners and pupils, eleven amateurs, and twelve veterinary pupils. They who chose to submit to such an examination assembled at my house, and the following subjects were placed before them: "The spinal chord," "The horns of cattle," and "Inflammation." At the close of the evening the papers were collected, to each of which a motto had been affixed, and the keys to the mottoes were enclosed in sealed papers, and deposited in a little box, likewise sealed. The papers were not opened until the evening of final examination, and the little box of mottoes not until the relative value of each paper had been determined.

In addition to this, I appointed a *vivâ voce* examination; and determined that in one case only would I interfere with it; i. e. if any pupil, whose general merit I well knew, should be questioned on a subject with which in our short course he had not the opportunity of making himself acquainted, and therefore might unjustly suffer in the opinion of the examiners. This case did not occur, and I did not ask a single question; my office was simply that of secretary, recording the queries and the answers, that their merit might afterwards be calculated. I would beg leave here to submit, that when the teacher can procure sufficient and qualified examiners, delicacy and propriety and justice prohibit him from taking any part in the examination; for he knows the strong and the weak points of every pupil, and he can, without the slightest apparent partiality, shew off the least deserving, and cast a slur on the reputation of the best. With this power, and with the most honest intention, if he satisfies others, it will be an exceedingly difficult thing for him to satisfy himself, or to do real justice among the competitors; and for his own comfort and reputation, and the reputation of his class, if it be one that is actually deserving, he should never be an examiner.

My valued and highly-talented friends, Professors Davis and Pattison, of the University of London, and Mr. Henderson, Veterinary surgeon to the Queen, and Mr. James Turner, of Regent-street, very kindly consented to preside over, and to conduct the

examination. In my own name, and the name of my class, and the name of my professional brethren, I thank them; for although, south of the Tweed, and beginning in my humble school, it is the commencement of that examination of veterinary students which justice and common sense demand, and which must ere long be conceded. To Mr. Dick, however, belongs the honour (and it will never be forgotten by his brethren) of having previously introduced this only rational and equitable mode of examination in the Edinburgh school.

Dr. Davis led the way; and his examination was so close and severe, that although I thought I knew the sterling acquirements of many of my pupils, I began to tremble, and was about to interfere, and to remind the learned professor that he had only four months' pupils to deal with: but the answers were so appropriate, and so far beyond even what I had hoped, that I left my young friends to the tender mercies of their inquisitor, and secretly exulted, when the almost undeviating correctness of reply only led to deeper probing. Dr. Davis's examination turned on anatomy, as connected with and illustrative of physiology. Mr. Pattison then took them on stricter and even minute anatomy, and questioned them now and then, not only on what did, but on what did not exist, to see whether he could not catch them a little tripping; and concluded with expressing his mingled satisfaction and surprise at their proficiency. Messrs. Henderson and Turner now entered on the most important part of the examination, the nature and treatment of disease, confining their questions to the horse; and they were pleased to say (what it would have been a disgrace to the class had it not been true, considering the rapid progress of veterinary science within the last few years, but what was, notwithstanding, highly creditable to my pupils), that they never met with young men so evidently and honourably qualifying themselves for the discharge of the duties of their profession.

When the examiners had retired to calculate the proportionate merit of the answers and the essays, which latter were now first opened, Messrs. Davis and Pattison again expressed their perfect satisfaction; and added, that although they had attended at my urgent request, and because I had said so much of the obligation of the veterinary profession to medical men, and the honour which would be conferred on the pupils by their presiding on such an occasion, yet they had soon found that they were incompetent to the task, and perhaps ought not to have been there; for although they had commenced with scrutinizing the improvement of others, they soon found that they were materially improving themselves (the humble narrator of the events of the day

had seen, and chuckled at, and gloried in this); and that, in fact, they had acquired very important information on points of comparative anatomy, physiology, and the treatment of disease; and that they, therefore, wished to leave the decision of merit to myself and Mr. Turner, Mr. Henderson having been compelled to retire.

This confession, so honourable to them, and elicited from men so high in reputation, suggests many a reflection that shall not, on some fitting occasion, be forgotten. The plea, however, was not allowed; and all set to work, diligently and impartially, to do justice among the competitors. The result was, that the prizes were awarded in the following order:

The first to Mr. William Simpson, of Lancaster.

The second to Mr. James Hammond, medical student.

The third to Mr. Samuel Wheatley, of Newmarket.

The fourth to Mr. James Cowie, of Hockerton, near Lawrence Kirk, North Britain.

And the fifth to Mr. Charles May, of Malden.

Certificates of merit were also awarded to Messrs. M. E. Naylor, of Wakefield; Edwin Drake, of Crediton; and Thomas Duncalf, of Newport, Shropshire.

The prizes were distributed by Dr. Davis, who, in an eloquent speech, reminded the class of the importance of the profession in which they had embarked; no longer vainly struggling to be admitted among the liberal arts, but duly estimated by every unprejudiced and thinking mind. He urged those who had been successful in obtaining either prizes or certificates of merit not to disappoint the hopes and expectations which their friends and fellow pupils, and the profession at large, would now cherish with regard to them. He imagined that he saw before him some of the future stars of the veterinary profession; and it would not be the least proud of his recollections, that he had witnessed their first glimmering of light. He urged on them the importance of diligence, devotion to their profession, and undeviating principles of honourable conduct. He sincerely thanked them for the pleasure they had that evening afforded himself and his friends, and assured them that every good wish would accompany them in their future career.

The lecturer then briefly addressed the examiners and the students; and a most important and happy day to him, and he trusts not to him alone, concluded.

I beg leave to add, in justice to the young aspirants, extracts from some of the essays. The reader will then be, as it were, transferred to our council room, and be enabled to judge for himself of the merit of the best of the competitors. He will not

forget that the subject was proposed at the moment, access to all books and notes was impossible, and the pupil could draw only from his own resources.

THE SPINAL CHORD, BY MR. SIMPSON.

The spinal chord is considered as a continuation of the medullary substance of the brain, lodged within the vertebral canal, and enveloped by three membranes continuous with the membranes of the brain. It is divided into six portions or columns, having a small aperture in the centre, first noticed, I believe, by Mr. Sewell. These six columns give origin to nerves of different functions; the two lateral columns to the nerves of organic life, the central superior to the nerves of sensation, and the central inferior columns to the nerves of motion. The sensitive and motor nerves arise from their respective columns by numerous filaments; and as they emerge from the sheath of the spinal chord they unite together, and are distributed over the body in inseparable and indistinguishable union with each other. But there are parts of the body where one or other of these systems of nerves predominates; thus, the sensitive filaments are much more numerous, or, in fact, exist alone in the skin, which we know by the pain manifested on cutting through that portion of the animal frame: the motor filaments evidently abound in greater quantities in muscles, which evince not so much pain when wounded, although they possess the power of motion in an eminent degree; and we infer that the motor fibres are diminished in numbers below the knee and hock, because there cannot be any use for them there, as the power of motion resides in the muscles above those parts; and we know from many circumstances that Nature never gives any thing in vain. The spinal chord is continued to the sacrum, where it divides into many slender portions, called the cauda equina. Between the chord and its sheath there exists a small quantity of fluid, which, most probably, has some influence in shielding this important part from the effects of injury, more especially from concussion.

THE HORNS OF CATTLE, BY MR. HAMMOND.

The horns of cattle consist of two distinct parts; an internal or osseous part having the cancellated structure of bones, and obeying the same laws in its production and growth. Its chemical constitution is also similar. The external part may be considered as an appendage or continuation of the cuticle: it possesses the same properties, and has not any analogy to the osseous part to which it serves as an envelope; it separates from it by maceration, as the cuticle from the cutis, and is only different in its state of condensation and thickness. The osseous part of

the horn has a cavity running through it, containing a highly sensible and vascular membrane; and severe hæmorrhage is a frequent consequence of fractures or divisions of the horn near its basis. The supply of nerves is demonstrable anatomically, and by the effect of a severe blow near the root of the horn, which nearly disables the most powerful animal. The horns of cattle are not regenerated usually; but attempts to that effect have been made when sawn off at its root. They are evidently intended as instruments of offence. It should have been stated above, that the osseous part of their texture appears to be a continuation of the immense diplöe existing between the two tables of the cranium in horned cattle, and that the horns arise from the sides of the frontal bone.

Before the reader proceeds to the essay on "Inflammation," it may be necessary to state, that I had drawn up for my own guidance, or for production at the meeting after the examination, if it had been required, a sketch of the kind of essay that I expected on each of the three subjects proposed. After these essays had been given in, and carefully put away, and not a line of them examined, I inserted in the last VETERINARIAN, under my usual *assumed* signature, the first portion of that essay, of course embodying the doctrines taught in my lectures. This will account for the similarity between that paper and Mr. Simpson's essay, a similarity of which I am justly proud. The seeming repetition of illustration and argument will be forgiven by those who admire youthful genius and industry; and if the master has sometimes been beaten, it is with his own weapons and by his own pupil, and he does not mind that.

ON INFLAMMATION, BY MR. SIMPSON.

Inflammation is an increased action of the capillaries, in conse quence of some morbid excitation of the nerves of organic life. These minute vessels are not in a state of debility. There is no congestion in them; the very essence of inflammation is increased action of the capillaries, which not only receive more blood, but actually propel more blood through them. The muscular coat of the tube is first excited to increased action; it contracts forcibly upon its contents, propelling the contained fluid into the continuous veins. When the muscular coat has thus contracted, the external coat immediately shews its principle of elasticity, and regains its former calibre with a velocity equal to that with which the muscular coat contracted; thus a fresh supply of blood is received by a principle of derivation. After a few of these contractions and dilatations, the artery supplying the capillaries which

labour in this morbid degree must begin to pulsate more forcibly; and, as a natural consequence, it receives and propels more blood than in a state of health. When this morbid exertion has been continued some time, the heart sympathizes with the inflamed part, the pulse is increased in frequency, and we have sympathetic inflammation.

The symptoms of local inflammation are heat redness, swelling, and pain. I shall consider these symptoms 'separately, in the order in which I have enumerated them.

Heat.—I must premise that the actual temperature of the part is not increased, or, if increased at all, only in a very slight degree. The sensation of heat to our feelings is greater, because under inflammation more blood passes through the capillaries, and is changed from arterial to venous, and is able to retain less caloric; and, therefore, a greater quantity of heat, but still at the same temperature, is given off than the skin can readily dispose of. The fact of this increased quantity of caloric being evolved from an inflamed part goes a great way to overturn the theory of congestion; for if the blood were stagnant in the vessels, instead of increased heat, we should have a diminution of temperature, since change of the blood is the source of the animal heat. The increased heat of an inflamed part is, therefore, dependent upon the increased quantity of blood passing through the part; not merely resting in the part, but absolutely passing through it.

Redness.—In our patients we are only seldom able to avail ourselves of this symptom, on account of the hair which exists in most parts; but in the eye and some other parts it is very evident. Redness is, if possible, more conclusive on the subject of congestion than heat. It is impossible for a part to be more red than natural if the blood be stagnant or detained in its course; for, instead of being red, it would immediately change to black. The increased redness must be referred to the same cause as increased heat,—a greater flow of arterial blood through the part.

Swelling.—I have said that in inflammation there is an increased quantity of blood flowing through the part; the vessels which before were too minute to admit of the red globules become enlarged, and these globules flow through them without interruption; independent of this, it is said fresh vessels are often formed, and these vessels also contain a portion of the circulating fluid. These circumstances alone would account for some portion of the swelling; but, besides this, we have some interstitial deposit, or an effusion of coagulable lymph into the surrounding cellular structure.

Pain.—Pain is accounted for by the pressure of the distended

vessels and the effused matter upon the fibrils or terminations of the sensitive nerves: it and increased heat are the principal characteristics to guide us to the seat of the disease in external inflammation in our patients.

Inflammation is said to terminate in resolution, adhesion, effusion, suppuration, and mortification. I am inclined to think that termination is an improper term, as it gives us a false idea; for inflammation does not always terminate when these effects take place.

Resolution.—Inflammation is said to terminate in resolution when the symptoms gradually abate, and finally disappear. It is not an actual return to health; at least the part does not always return to the state in which it was previous to the attack of inflammation; for we have some of the effused coagulable lymph still remaining, which, however, after a time, generally becomes absorbed, although too often a permanent thickening is left. Resolution is the most favourable termination of inflammation; and it behoves us sedulously to endeavour to bring it about.

Adhesion.—Inflammation terminates in adhesion on the surface of serous membranes; the vessels of the inflamed part throw out a quantity of coagulable lymph on the serous surface, which forms bands of union between different portions of the membrane: this lymph finally becomes organized. It is wisely ordained by a beneficent Providence, that serous membranes should be more disposed to terminate in adhesion; for had this been the case with mucous membranes, a common catarrh would very frequently produce death by suffocation.

Effusion.—When inflammation of a serous membrane has proceeded to such an extent that all chance of the more favourable termination of resolution has gone by, the exhalent vessels relieve themselves by throwing out a quantity of aqueous fluid, which often collects in great quantities in the cavities of the abdomen and thorax.

Suppuration.—Suppuration consists of an effusion of pus into the surrounding cellular membrane. When a small quantity is thrown out it presses upon the neighbouring parts, and in some measure condenses them: the pus continues to be effused, and the neighbouring parts are more condensed and pushed aside; consequently the cavity in which the pus exists becomes enlarged. This process goes on until the purpose for which the pus was thrown out is accomplished, when by some inscrutable power the absorbents begin to act, and gradually remove the walls of the cyst, and that, whatever may interpose, almost uniformly in a direction outward. It is useless to attempt to explain this wonderful power by any laws or any mechanism which the

mind of man can imagine: it is a power conferred by One who orders all things right.

Mortification, Gangrene, or *Sphacelus.*—These three terms are nearly synonymous, except that by sphacelus we generally mean the mortification or death of a whole limb, whilst gangrene is more circumscribed. Mortification is the death of a part. Previous to mortification debility takes place; the vessels become so overloaded with blood that they cannot contract on their contents, and consequently congestion really occurs: the blood coagulates in the capillaries, and vital action gradually ceases. When a part is thus dead, it soon acts as a foreign body. The absorbents then set to work, and remove a portion of the substance immediately surrounding the dead part, or between it and the living, and it becomes detached, and falls off. This process is technically called sloughing. There is a wise provision to prevent any hæmorrhage when the part is detached; for the blood does not merely coagulate in the capillaries of the part which is to be thrown off, but also in the vessels a little within the sound part; thus these vessels are completely plugged up, and all hæmorrhage is prevented.

Treatment in order to produce Resolution.—Referring to the definition of inflammation, the first indication of treatment, is to lessen the supply of blood to the part inflamed; therefore it is requisite to abstract blood. Our sheet-anchor in inflammation is venesection, and almost every thing depends upon a prompt and free use of the lancet. We shall find great benefit in local bleeding; for we are then drawing blood from the labouring vessels themselves, and thus giving them a little respite; and even the slight rest which local bleeding gives them, will have considerable effect in restoring them to their proper tone. Next to bleeding stands purgation in the list of remedies for inflammation. Purging acts as a sedative; it produces a degree of nausea, by which the circulation is diminished; and it also lessens materially the quantity of the circulatory fluid. In local inflammation, fomentation will be found highly beneficial. The application of warm water will open the pores of the skin, and thus induce perspiration; the exhalent vessels will get rid of much matter by this process: but if fomentations are negligently or improperly applied, they will be productive of mischief instead of benefit, as evaporation will take place, and reduce the temperature of the part, and the vessels will be constringed instead of relaxed, and the sudden alternation of cold and heat will weaken the vessels, and dispose to disease.

Cold applications, however, are often very useful in local inflammation: they act by depriving the inflamed part of some

portion of its superabundant caloric; and they corrugate the skin and the coats of the arteries; thus diminishing the calibre of the vessels, and consequently the quantity of contained fluid. It is always requisite to attend to the diet of a horse labouring under inflammation.

Time prevents me from speaking of the division of inflammation into acute and chronic, and also many other branches of this very important subject.

A few definitions, almost unequalled for their terseness, are extracted from the essay of Mr. Cowie on the same subject.

Inflammation may be defined to be, an increased action of the capillary vessels. This action seems to be at first independent of the state of the heart and larger arteries; but no inflammation can exist long, or to any degree, without the heart and arteries sympathising.

Local inflammation is that which is confined to one place; and the immediate cause of local inflammation is, irritation of the organic nerves supplying the capillaries of that place or part.

The treatment of local inflammation is simple and efficacious in proportion as its seat will admit of curative access.

Resolution is a cessation of symptoms, in consequence of a decrease of inflammatory action.

Adhesion is the union of two substances or parts that had been naturally or otherwise separated; and it is effected by means of lymph deposited between them, and becoming organized.

Suppuration is a morbid secretion of pus; and a collection of pus constitutes an abscess.

AN ACCOUNT OF THE FRENCH VETERINARY SCHOOLS.

Having extracted from a little book, now become scarce, a history of the establishment of the Royal Veterinary College at St. Pancras, and the views and purposes of its founders, and the excellent regulations established by them, but now strangely become a mere dead letter, we will endeavour, as opportunity may serve, to give a slight sketch of the continental schools.

France and Europe were, during the first half of the last century, ravaged by several most destructive epizootic diseases, among cattle principally, but extending also to the horse, to sheep, and almost every domestic animal. The murrain, or

pest, or malignant epidemic, was not previously unknown; its visitations, however, had been rare, and short; but in the year 1710 it seemed to break out contemporaneously in every part of Europe: it raged with undiminished fury for four years, and destroyed nearly half of the cattle. The skill of the rude cow-leeches of the day, and even of the most eminent medical practitioners, was completely baffled. With occasional remissions, irregular and too often short, it was the terror of the agriculturist for forty years; and then, about the year 1750, it seemed to assume a tenfold power to devastate, and for ten years all medical skill, and all legislative preventive or curative enactments were insufficient to arrest its march. At length, it became evident to the medical men who had fruitlessly laboured to remedy the evil, and to the agriculturist who had suffered so severely by it, that they were contending with the foe at much disadvantage; for they knew not the nature of the weapons which he used, or the sources whence he derived his power. There were no persons who had devoted themselves to the study of the anatomy and diseases of domestic animals, and who might thus be enabled to recognize the true nature and seat and treatment of the complaint. Common sense and interest began, at length, to enforce the propriety of the establishment of veterinary schools; and on the 5th of August, 1761, a decree of the Council of State empowered Bourgelat, a veterinary practitioner, and likewise the best veterinary author of his day, to found at Lyons a school for the study of the anatomy and diseases of cattle (from the circumstances I have related, naturally placed at the head of the list), horses, mules, sheep, goats, swine, dogs, &c.

Bourgelat, than whom a more zealous and fitter man could not have been selected, was appointed director of the school; and on the 1st of January, 1762, the veterinary college at Lyons was established. The school consisted of Bourgelat, as director; an assistant director, who was also professor of anatomy and surgery; a professor of materia medica and botany; another of the knowledge of the exterior of animals, and the treatment of disease; a third, who had the charge of the hospital, and was also assistant professor of surgery; and a fourth, who had the management of the forge.

This school had scarcely been established, when its utility was abundantly demonstrated. Partly, perhaps, from natural causes, but to a considerable degree from the diligence and skill of the professors, the ravages of the epidemic were restrained, and at length it disappeared altogether; and the other diseases to which cattle and horses were subject, were also mitigated in

their severity, and more easily subdued. Young men from every province of France flocked to the newly-established school; and the governments of Switzerland, Sardinia, Austria, Prussia, and even Denmark and Sweden, sent many young men to be instructed in this new and most useful art, the treatment of the diseases of domestic animals.

In the third year of its existence the institution at Lyons was taken more immediately under the protection of the Sovereign, and was called the Royal Veterinary School; and in the following year it was determined to establish another and larger school in the more northern part of the kingdom, and in the immediate neighbourhood of Paris. Late in the year 1765, the Chateau d'Alfort was purchased. Bourgelat lost not an instant of time; but dispatched some of his best pupils to Paris, who diligently employed themselves in accumulating all the necessary anatomical preparations; and in 1766 the veterinary college at Alfort was opened, under the direction of Bourgelat. Soon afterwards it was determined that every regiment of cavalry should be compelled to send a young man to Alfort to be instructed in the veterinary art; and it had been previously ordained, that every pupil who had resided four consecutive years at the school, should be permitted to practise his profession in every part of the kingdom, under an especial *brevet* from the king.

The institution at Lyons continued to flourish; but that at Alfort being, as it were, attached to the metropolis and the government, was more especially patronized.

The system of instruction, however, pursued in these schools was not, and could not at first be expected to be, perfect. It was of a strangely heterogeneous character. In the study of the exterior of animals, too frequent and too lengthened lessons were given on drawing, on painting, and even on sculpture; as expressing the anatomy, the proportions, the general and individual character, and even the passions of animals. The improvement of the veterinary surgeon was in a manner compromised in the education of the artist. Beside this, the veterinary pupils were prepared to act as substitutes for the human surgeon, in case they should settle in villages remote from any large town, and where medical aid could not be easily obtained. A complete course of lectures on midwifery was delivered to them; and also surgical lectures, so far as the treatment of fractures and wounds was concerned. The inconveniencies, however, of this intermingling of professions was soon apparent, and the attention of the pupils was confined to that which would constitute their proper and peculiar duty. During the winter

and spring they studied anatomy and the materia medica, both external and internal. In the summer and autumn, they were occupied with the exterior of animals, the choice and examination of the horse, botany, pharmacy, chemistry, the knowledge of disease external and internal, the application of restraints and bandages, and the theory and practice of operations. The treatment of disease, and the management of the forge, were constant subjects of strict attention.

The pupils were compelled to reside within the school, and a very severe discipline was established among them. The hours of rising and going to bed, of breakfast, dinner, and supper, of their attendance on the professors, and the discharge of the hospital duties, were announced by the tolling of the bell. Their attention and their orderly conduct were rigorously exacted, and a surgeon's certificate of ill health was alone admitted in excuse. The pupils and the professors were distinguished by a uniform. In addition to the diploma at the end of the fourth year, and that only obtained after a strict and public examination, prizes were distributed at the close of every session, consisting of instruments and medals. Every student who pleased was permitted to present himself for examination at this annual *concours*. The professors, the veterinary surgeons of Paris, and some of the ministers of government, presided. On the first day the competitors were examined on all the diseases of all domestic animals, their causes, symptoms, and treatment; the anatomy and physiology of every domestic animal; materia medica, chemistry, and medical jurisprudence. On the second day, they practised every operation on the living animal, bleeding, rowelling, setoning, tracheotomy, castration, docking, firing, shoeing, and every operation on the foot. They were compelled to give a reason for every step of every operation, and for every variation in the form of it which circumstances might require.

M. Bourgelat continued to preside over the school at Alfort, and M. Flandrin over that of Lyons, for many years; and the reputation of both the schools progressively advanced, with this exception, that Alfort being situated so near to Paris, and there being in that metropolis numerous horses and but few cattle, the original intention of the school, as embracing the anatomy and diseases of all domestic animals, was, to a considerable degree, forgotten, and it became an institution almost exclusively for the diffusion of horse-knowledge. This, at length, became so lamentably evident that the government interfered, and endeavoured to arrange the appointment and the duties of the professors, so as to accomplish

the first and most important objects of the institution. The anatomical teacher was charged to include in his lectures the structure of every domestic animal; and two professors were appointed, whose labours were confined entirely to the breed and the diseases of cattle, sheep, &c.; and, finally, when the influence of situation prevailed over the most excellent regulations that could be adopted, and the patients were principally and almost exclusively horses, a third school was established in the south of France, professedly devoted to the study of the diseases of cattle and sheep. But we are rather anticipating the progress of events.

Bourgelat was very subject to the gout, and the attacks became more frequent and severe as he advanced in years. In December 1778, it appeared at once both in the head and the stomach; and in the beginning of January 1779, he died, in the sixty-seventh year of his age. He may be considered as the founder of the veterinary art in France. He was a voluminous and a valuable writer. As a professor, his talents, his easiness of access, and his readiness to serve his pupils, endeared him to his class. At a meeting of the students it was resolved to solicit the government for permission to erect a bust of him in the place which his genius and his zeal for the public good had created, and in that hall in which his pupils had so often listened to him with improvement and delight. Leave was immediately granted, and a considerable sum appropriated, in addition to the contributions of the students. This bust, in white marble, on a bronze pedestal, now adorns the museum at Alfort. On the pedestal is engraved, ARTIS VETERINARIA MAGISTER; and on a tablet of white marble,

CLAUDII BOURGELAT EQUITI
OB INSTITUTAM
ARTEM VETERINARIAM
DISCIPULI MEMORES
ANNUENTE REGE
POSUERE
ANNO M.DCC.LXXX.

At the base two B.B. are found, referring to Bertin and Bourgelat, and commemorating the friendship which existed between the minister, always the zealous promoter of the veterinary art, and the professor who founded it.

There were numerous candidates for the vacant office; but the king, by the advice of his minister, determined that one of the pupils of Bourgelat should be selected, as best acquainted with the views and purposes, and mode of teaching, of the first professor; and, as a just and honourable tribute to his memory, M.

Chabert, a very respectable practitioner, but not equal to his master, was chosen director-general of the schools, and principal director of Alfort. M. Flandrin, the director of the school at Lyons, was appointed assistant director-general, and acting director at Alfort; while M. Bredin succeeded him at Lyons, and M. Chanut became anatomical professor at Alfort. Chanut had particularly distinguished himself by his successful treatment of several epizootics, and particularly of one that devastated the duchy of Luxembourg in 1770, and Flanders and l'Artois in 1776. Alfort, however, did not long enjoy the valuable services of Chanut, for he died two years afterwards of consumption, at the age of thirty-seven.

An attempt was now made to remingle the veterinary and medical professions. M. Bertin adopted the mode of argument to which we have before alluded: he supposed that the veterinarian would often be brought into contact with the lower class of agriculturists, who could not, or would not, apply for medical aid under various accidents and diseases; and he wished to qualify the veterinary surgeon for rendering that service which would not otherwise be obtained. Instruction was, therefore, given to the young veterinarian in midwifery, and in the treatment of dislocations and fractures. A chair was established at Alfort for these branches of medical education. The pupils crowded to this class, and returned to their native provinces apparently with enlarged means of being useful: but the occasions to exercise these new acquirements depending on the confidence which they might inspire, and this confidence being the natural and the sole consequence of high reputation and repeated success, and being associated with other branches of learning with which the veterinarian had neither time nor opportunity to make himself acquainted, it so happened that these half-medical men had very little employment in their new profession; and the limited knowledge which they evidently possessed of their new profession, begat the suspicion that they were not too well informed in their old and natural one. This course of instruction was, therefore, abandoned, yet seemingly abandoned with reluctance, and other portions of medical study were attempted to be substituted: first, a knowledge of the signs of death; for it was supposed that in some parts of France many persons had been buried who were merely labouring under temporary catalepsy; and, next, a knowledge of the diseases of the eyes, to which M. Bertin was led by the frequency of blindness among the French peasantry, and by the adroitness with which he had often seen the veterinary pupils operate on the eyes of domestic animals, in that (favourite with the French, but) scarcely practica-

ble and useless performance, the removal of a cataract. These branches of medical study took the same course as the others, and were speedily abandoned. One somewhat more legitimate branch of surgical treatment remained—a kind of border ground between the two professions, and which the veterinarian might cultivate without impropriety, or rather with advantage to himself and numerous patients, viz. the treatment of wounds inflicted by rabid or venemous animals.

One bad consequence, however, followed from all this. The attention of the director had been diverted from the strict pursuit of veterinary science. He had wandered far into the regions of human surgery, and he now began to trespass on those of zoology and comparative anatomy. First came the attempt to form a menagerie, composed, in the beginning, of the different breeds of domesticated animals from every neighbouring country, that it might be tried how far the native breeds of France might be improved. This, although suiting more an agricultural than a veterinary establishment, was pardonable. The different breeds of cattle and sheep, and the improvement of the breed, were legitimate objects of the veterinarian's study. But a wider and comparatively useless course of experiment succeeded; wild animals were collected and crossed with the tame; and then wild animals of every species, and from every country, began to be sought after. Every thing was procured that could cast any light on comparative anatomy and physiology, but comparative pathology was little thought of. A splendid menagerie and museum were thus formed, useful and valuable, but little useful and valuable to simple veterinarians. So hobbyhorsically was the new hobbyhorse ridden, that M. Chabert and a troop of his pupils betook themselves to St. Malo to collect, and dissect, and preserve the different species of fish that the French coast afforded.

Then chemistry,—not pharmaceutical or veterinary chemistry, but agricultural chemistry in the widest sense of the word—chemistry unlimited, was a favourite object of pursuit, and pursued at a very great expense. After that, experiments were made on rural economy;—the different manures;—the succession of crops, and the comparative nutritive properties of vegetables. Chabert was a scientific but too highly imaginative man. In the minister Bertin he found a kindred spirit; and between them they were forming a noble institution identified with the glory and interest of France, but not a veterinary institution. The anatomy and diseases of the horse and cattle were neglected,—almost abandoned; not, indeed, neglected or abandoned by the professors, for they were true to duty: they continued to lecture earnestly on the proper subjects of their course; they remonstrated warmly and repeatedly

on the changed character of the school; but they were powerless—they had no vote; the director was misled, and the pupils were dazzled and misled, and veterinary science was sinking, and the school was suddenly found to be £10,000 in debt. Creditors were clamorous; government was alarmed; and the director was at his wits' end. The folly of the system which had been pursued was now apparent, and it was seriously discussed whether the veterinary school should not be suppressed.

Veterinary science, however, found some ardent friends. A stop was put to all this wild extravagance, and the director was compelled, in a great measure, to return to the original design of the institution. The pursuit of natural history was not abandoned, but it was no longer suffered to oppress and strangle veterinary science. It was made a distinct national object. The foundation was laid for the noble Museum of Natural History at Paris; and the director, being shorn of much of his power (for he was before a kind of despot in the institution, as he could select and could dismiss the professors at his pleasure), the veterinary school began to pursue a humbler but more useful course. EDIT.

[To be continued.]

THE ARMY VETERINARY DEPARTMENT.

RETIREMENT AND PENSION.

IN no station of life can a man be said to live altogether in contentment, unless his situation be such as to hold out prospects to him of a future provision, such as will enable him to maintain a sort of independence, at a time of life when he may feel himself either unable or indisposed to continue longer in his occupation. Persons in the mercantile world, and in trade, have in general such present means, as by good management and economy, furnish them with funds for future store: but those that serve in the employ of government—in the army and navy especially—have seldom such incomes as will allow of much savings, and are consequently provided for, after certain lengths of servitude, by the government under whom they have expended the strength and flower of their days. There is, in course, a vast deal of difference in the scales of retirements and pensions among different descriptions and ranks of government officers: some seem to be rather *over* than *under* rewarded for their services; while a still greater proportion are certainly compensated at too low a rate, among whom we regret to be forced to rank the army veterinarian. An army veterinary surgeon must serve twenty years, in order to have any claim; and then he becomes

entitled to seven shillings per diem: at the expiration of twenty-five years, he can claim eight shillings; and at thirty years, twelve shillings; or, by favour, fifteen shillings.

As we shewed in a past paper on this subject, there is a vast deal of difference between this scale and that by which the surgeons' retirement is fixed; and we do complain of the inferiority of our own.

A part of his allowances, however, which calls yet more for revision and augmentation, is the army veterinary surgeon's widow's pension. Few regimental veterinarians have it in their power to *lay by* any thing out of their pay; consequently they must, at their death, be said to leave their widows entirely at the mercy of government: and this mercy, we are almost ashamed to confess, even to the *oldest* veterinary officer in the service, does not extend beyond the claim of £30 per annum; a sum certainly inadequate to the maintenance of the widow he may have left behind him. Were this annuity one that (like his pay) became susceptible of increase with his rank and service, the veterinary surgeon could not complain: but, fixed as it is, insusceptible of the least augmentation, let his period of service be what it may, it turns out a poor pittance, and very inadequate reward to the widow for the twenty, thirty, or forty years' servitude of her husband. In fact, there seems to be a manifest want of justice in the case: for, according to the existing regulations of the army, the widow of a veterinarian of two days' service has the same claim as she whose husband has stood the brunt of thirty long years! There is, to say the least of it, extreme inconsistency here; and, to speak out in plainer terms, it forms altogether an instance of hardship and cruelty that has, we trust, no parallel in military administration.

It may be asked, why the affair has not been represented to the proper authorities? It has been: a manifesto (or memorial, as it is termed) has been presented; and another has been in agitation. But all this proves, and must prove, of no use, so long as we remain without a head—unrepresented and uncared for at the Horse Guards.

The following regulations, bearing upon half-pay and retired allowances, have just made their appearance in the Army List for the present month: they will confirm what has been heretofore stated.

"The rate of half-pay for a veterinary surgeon shall be regulated by his service on full pay, according to the following scale; viz.

	A-day s.	d.
If above 3 and under 10 years' service . . .	4	6
If above 10 and under 20 years' service . . .	5	6

If above 20 and under 25 years' service . . . 7 0
If above 25 and under 30 years' service . . . 8 0
If above 30 years' service 12 0

" 1. If a veterinary surgeon shall be reduced, or shall retire to half-pay before he has completed three years' service at home, or two years abroad, he shall be allowed only *temporary half-pay* of 3*s*. 6*d*. a-day; agreeably to the scale and regulations prescribed heretofore for the temporary half-pay of subalterns.

" 2. Every veterinary surgeon who may have served upon full-pay for twenty-five years and upwards, or who may have served for twenty years, provided he has passed five years abroad, shall have the right to retire upon half-pay, at the rates assigned to those periods of service."

Such are the hopes and prospects held out to meritorious veterinary services in the army: they are not so encouraging as they might have been; but what we have to complain of is, that we are left by these regulations in a worse condition than we were in according to those under which we (who are now commissioned) entered the service.

SUPPLY OF MEDICINE.

The horses composing the several regiments of cavalry are supplied with medicine, as they are with forage, by contract. The contractor is the principal veterinary surgeon to the cavalry, Mr. Coleman; who has a contract with government to furnish the medicine required by the respective regimental veterinary surgeons at three-pence a month (or three shillings per annum) for each horse. So that, estimating a regiment of cavalry at three hundred horses, the contractor receives £45 per annum for their consumption of medicine; and taking the whole of the cavalry in England at fifteen regiments, Mr. Coleman receives annually about £700, perhaps rather more than less, on account of the officers' horses, up to a certain number, being also included in the contract. I only reckon about fifteen regiments in England and Scotland, because those serving in Ireland and India furnish their own medicines; and the household troops and 10th Hussars having also the same privilege.

I am not apprised of the specific terms or conditions of this contract, nor do I know that I possess any means of obtaining them (even were I quite sure that any were in existence, of which, by-the-by, I entertain one or two strong doubts); however, be that as it may, a quondam cotemporary of THE VETERINARIAN was, some time ago, bold enough to publish a list of such articles (in addition to medicines) as Mr. Coleman, in his

conception, was bound to furnish the regimental veterinary surgeon with, a copy of which I subjoin:—

"Suitable clothing for horses when sick; bandages and cloths, or other means for the application of poultices; tow for the stopping of feet; kettles for the heating of water for fomentations, the making of mashes, and other purposes; fuel for these purposes; bleeding cans; instruments; means of casting horses with safety, and securing them in favourable positions for the performance of operations."—*The Hippiatrist, Aug.* 1, 1830, p. 226.

Not having cognizance of the specific nature of the contract, I repeat that I cannot of myself vouch for this list containing *all* that the contractor may be called on to supply: I can only say that, in my opinion, as the government allowance is a liberal one, the regiment demanding a supply has a right to expect all that is required in the veterinary department for it.

The question has been more than once mooted, of the extreme unfitness of a person holding the situations Mr. Coleman does for an army contractor. It has been urged (and very reasonably) that a purveyorship of medicines was quite irreconcilable with his commission as principal veterinary surgeon to the cavalry; and further, that as he was the lecturer who instructed the army veterinary surgeons in the knowledge of their profession, it became his interest, however his honourable feeling might oppose it, to point out to them, and recommend them to use such medicines, &c. as were to be purchased at a comparatively cheap rate.

I have never entertained but one opinion on this point, and that has been, that it is alike discreditable and impolitic on the part of Mr. Coleman to appear in the character of contractor: for him who stands the acknowledged head of veterinary affairs, both civil and military, to place himself in the situation of a druggist—of a vender of bottles and bandages—I have ever looked upon as derogatory both to his professional rank and his acknowledged talents as a public teacher; besides subjecting him, however unjustly, to animadversions such as cannot fail to arise in the mind of any one sufficiently acquainted with the nature of these incongruous offices to perceive how they might be turned to the advantage of the holder.

It was a very unwise act of the government to place the contract for the supply of medicine in the hands of that very man by whose rules and instructions it was afterwards to be dispensed: it was still more unwise on the part of Mr. Coleman to apply for and receive such a contract. By this contract, he has placed himself in such a situation, that, if he recommends the

use of expensive medicines, &c. he will not be near so great a gainer as if he had advocated the use of drugs of a cheap description: he is consequently forced into the very unpleasant predicament of either acting against his conscience or his pecuniary interest; a situation in which no man ought ever to be placed. And there is no member of the profession entertaining any regard for Mr. Coleman, who does not regret that he ever suffered himself to become an agent in such a capacity.

AN ARMY VETERINARIAN.

A CASE OF STRANGULATION OF THE ILEUM, AND ANOTHER OF RUPTURE OF THE VENA PORTA.

By Mr. W. CHADWICK, V.S., *Hot-wells, near Bristol.*

A BLACK draught horse at the Hot-wells exhibited, about two o'clock on Sunday morning, the 15th of May, strong symptoms of colic. The groom of the yard was called, who bled him immediately to the amount of seven quarts, and gave him a pint of castor oil and an enema of water gruel. The horse gradually got worse until seven o'clock, when the owner sent for my uncle (who is retired from practice) and myself. We found him apparently labouring under Enteritis. I immediately proceeded to back-rake him; and, as soon as possible, threw up a purging enema. The balls of dung I brought away were covered with mucus. The enema produced no effect, and in two hours afterwards I administered a drink composed of a strong decoction of senna with Glauber salts, and on which I always place reliance, and the good effect of which I have repeatedly seen. At four o'clock P.M. this had produced no evacuation, and the horse was sweating profusely from his body, while his ears and legs remained cold, and he was continually lying down and getting up again, *without rolling*. I again raked him without effect, and administered a second enema, which remained in him for twenty minutes; I then left him until seven o'clock, when the symptoms were rather easier, but there was no evacuation. I now gave him thirty grains of pulv. croton in a ball, and requested the groom to horn down a little thin gruel; the symptoms then somewhat remitted until one o'clock on Monday morning, when the horse stood up quietly until a quarter before two, when he dropped down suddenly, and died in a minute.

On dissection, we found a quantity of undigested hay, &c. in the stomach, with the oil and other medicines, a part of which passed on to the ileum, which was *discoloured*, and at the junction of this intestine with the cœcum it was convoluted into a *firm*

knot; the mesentery was torn considerably, and the adjacent parts completely *gangrened.* The horse was sound in other respects, and had done only a moderate portion of work the day before, and at seven o'clock on Saturday evening had eaten and drank as usual.

A second singular case occurred last week in a horse which worked in one of our one-horse public carriages. He was driven rather sharply from Bristol to the Hot-wells (about one mile), to be in time for the arrival of one of the steam packets, and had not been on the stand above five minutes, when he suddenly and violently jumped up and fell down, and before he could be loosed from the carriage he was dead. I attended the dissection the same evening, and found him sound in every respect except the liver. The vena portæ was ruptured, and the abdomen deluged with blood. The stomach was completely crammed with undigested food.

THE VETERINARIAN, JULY 1, 1831.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

ON the 16th ultimo an open dinner of the Veterinary Club, a dinner to which the members had more than the usual privilege of inviting friends, took place. We will endeavour to give some account of that club, and, as nearly as we can recollect, in the language of the chairman of the day.

There has for some time existed in the metropolis a little knot of practitioners well known to each other, occasionally thrown together in the way of their profession, or for the purpose of scientific discussion, or perchance convivial enjoyment, and thus taught mutual esteem. They were gradually brought closer together, and at length formed themselves into a friendly club. No veterinary political purpose did or could unite them; for they differed far too widely in their views of veterinary affairs. There were among them some straightforward *honest* radical reformers, what perhaps could not be affirmed of radical reformers generally;—there were the advocates of more moderate reform, and not because they were *compelled* to bend to the spirit of the times, and, therefore, supported that which they could not resist,

but because they were anxious that the profession in which they had embarked should be freed from those causes of disrepute which had so long been attached to it: there were, however, no ultra tories; there was not a man in the club, there is not a thinking man in the profession, who does not feel that there is much that wants reform among us: but some could not forget, and their companions would not have liked them if they could, old associations and old benefits. No veterinary political purpose, therefore, was intended to be answered, or could be answered, by the establishment of the Veterinary Club—but there were some *good* purposes intended to be effected, and thoroughly effected, by their periodical meetings.

These were hours of pleasant relaxation. The fatigues and annoyances of a profession like theirs ceased for awhile to prey upon them. The mind was unbent, yet in that way which prepared it for renewed exertion. Their *whimsical* peculiarities of opinion and practice,—it was pleasant and useful to roast each other about them. Many a sally of harmless but splendid wit, and many a flash of genuine humour was elicited: but it was more pleasant to observe, to acknowledge, to glory in, and to learn the *sterling* and *valuable* peculiarities of opinion and of practice by which each was distinguished—good-humouredly, to laugh each other out of his professional foibles, to copy each others excellencies, and to embody in each that which was good in all—to feel no jealousy, but to glow with honest emulation. These were the necessary and invaluable consequences of bringing together those, all of whom had obtained some degree of reputation, and in all of whom there was something to admire.

From this naturally followed that uniform honourable professional conduct, not always found among the practitioners of a new art. It was impossible that these men could, to any glaring degree, be actuated by professional jealousy, or disgracefully cross each others path. There was a tie upon them that was wanted when they were struggling to attain that consideration in society to which they were justly entitled, but which had been too long withheld; a tie which they dared not, could not break; which forbad them to rise on the ruin of each others reputation,

but to found their justest, surest claim to regard on their individual respectability and merit, or rather on the respectability and merit of all.

This was the flattering picture which the chairman drew of the intention and working of the club; and although its members are but men, and have all the infirmities and occasional aberrations of men, we can affirm that it was not *very much* overcharged. Temporary dissentions, and almost estrangements, might on rare occasions exist, but they were temporary: a prudent and skilful friend interposing, or one word of concession half unconsciously, or half meant, dropping from either, the two proud spirits were at once subdued. We can safely say, having the honour of being humble members of this club, that in no society did we ever spend happier hours, and certainly from no society did we derive so much improvement.

In their convivial meetings, however, the members of the club did not forget the profession to which they belonged; indeed, they thought more highly of their profession, and loved it the better for containing such men: and, at length they determined, on one day at least, to admit their brethren, or such of them as they dared, within the hallowed circle; and they had this *open* dinner, and each was permitted to ask whom he liked, but was considered to be responsible for those whom he invited. Before, however, the day arrived, disease had been sadly busy among the members and in their families, and at no ordinary meeting had so few of the club been present. Of the club, Messrs. J. Field, jun., W. Goodwin, Henderson, King, sen. and jun., Langworthy, James Turner, and Youatt, were present; and among the visitors were Messrs. Harrison, late of the 10th, May of Maldon, Sewell of Brighton, Siddall of the Royal Horse Guards, Simpson of Lancaster, Spooner of the Zoological Society, and Watts of the Scotch Greys; with three amateur friends, and two excellent comic singers, Messrs. Beuler and Hudson, who had kindly volunteered their attendance. A pleasanter evening was never passed.

Why all this about a club dinner? To tell our country friends of the formation of such a society in the metropolis and its

neighbourhood, and the pleasure and advantages which result from it, and to induce them to establish—as in many situations and not in very wide circles they may—similar associations. If in the establishment of such societies they will carefully steer clear of every party object and feeling, they will be amply rewarded in the suppression of little, but annoying and disreputable jealousies, and unfair and dishonourable competitions and crosses; in the increased acquaintance with and esteem for each other; in the knowledge of each other's practice and each other's improvement; and in the increased improvement, and reputation, and success of each; and, veterinary practitioners being thus connected together, all will be gradually effected for the advantage and progression of the veterinary art which the most ardent reformer can wish.

They who had the honour of attending on the beautifully simple, but accurate and profound anatomical lectures of Mr. Brookes, and who have not forgotten how the kindness of the man mingled with and softened, and yet secured the authority of the teacher, and imprinted his lessons deep on the memory and the heart, will be pleased to hear that sixty of his pupils and friends, including some of the most eminent practitioners in the metropolis, invited their old master, on the 25th ultimo, to a public dinner. Our excellent friend, although past his seventieth year, was in robust health, the faculties of his mind unimpaired, and the buoyancy of his spirits scarcely diminished. It must have been, indeed, gratifying to him to see so many, the foundation of whose skill and fortune he had mainly contributed to lay, anxious to tell him that the lapse of years had not diminished their admiration and gratitude.

As his theatre had been gratuitously opened to veterinary pupils, the Veterinary College was not forgotten among the toasts. Professor Coleman returned thanks in appropriate terms; and when, afterwards, the health of an humbler teacher was drunk, who had had the advantage of having been a pupil of Mr. Brookes for some time before he entered the Veterinary College, it gave that individual the truest delight to hear one of

the professors of the University of London testify that he had never witnessed a severer examination, and never a more brilliant one, than that which the veterinary pupils of that humbler teacher had lately undergone. He said that he came, perhaps, a little prejudiced against veterinary students, on account of the class of life from which some of them came, and the ignorance, and incapacity, and low manners, and lower associates of too many veterinary practitioners; but that he was perfectly astonished, for they would have done credit to any university in the world. Veterinary students are now beginning to assume their proper character and station; and they want but the opportunity to shew themselves, which has been lately afforded them, in order to obtain deserved estimation.

The pupils of Professor Coleman will be pleased to hear, that their old master had, on Thursday the 23d ultimo, the honour of being the first veterinary surgeon who was ever admitted into the ROYAL SOCIETY: he will not, however, be the last, by many, who will deserve, or endeavour to deserve, that distinction. The schoolmaster is abroad among us; and we will, by and by, convince our elder brethren of the medical profession, that we are not unsuccessful or unworthy fellow-labourers in the field of science.

Some time during the last month the annual meeting of the governors and subscribers of the Veterinary College was held; but as we were excluded (and so are all students and practitioners, even though "they would do credit to any university in the world") from an assembly into which a tinker or a chimney-sweeper, or the veriest blackguard in the streets, would be readily admitted, we do not know what took place.

The following extract from the concluding clinical lecture of Dr. Elliotson is so applicable to the situation of the veterinary student and practitioner at the present time, and is so full of truth and excellent advice, that we select it as the concluding part of our leading article:—

"The instruction that was given in medicine was certainly altogether deplorable, at one time, in London; and I am sure that every thing was rather calculated to disgust pupils with physic than to satisfy them. There were not the same means of diagnosis formerly that we now possess; and when a diagnosis cannot be established, you cannot take much interest in the case—and for this simple reason, you cannot see your way. Whatever treatment is adopted cannot interest you, because you cannot see why it is adopted, or be sure that there is reason in it. Such treatment, too, is generally inefficient; because, as you have not made a diagnosis of the case, you are floundering about, fancying one thing to-day and another to-morrow; and such treatment must disgust a pupil rather than excite his attention. With too many, physic is a mere guess; and they affect to sneer at those who bestow the time and employ the means requisite for making such a diagnosis as you know to be possible. I conceive that one of the greatest improvements in modern physic is the great facility of diagnosis. Some sneer at those who condescend to use what they call mechanical means—nature's senses of hearing and touch, in diagnosis; but let us employ with thankfulness all the means in our power.

"In the treatment of disease, you will find the first thing always to be, to make an accurate diagnosis. It is no matter whether the diagnosis will lead you to a cure of the case or not; the point is, as a general and invariable rule, to make an accurate diagnosis. If it will enable you to cure the disease, so much the better; if it will not, still you see your way to relieve it a great deal better, or you learn the inutility of particular plans of treatment: and it is to be remembered, that if *we* make an accurate diagnosis, our successors, perhaps, will be able to advance further,—to turn the diagnosis to account; but as long as we are unable to distinguish diseases, we cannot expect much satisfaction in the treatment. Among the improvements of our profession, this must be considered as one of the foundations; and future generations will be able to profit by the improved diagnosis which we have established.

"But with respect to diagnosis, it is also necessary to make it

as to the *variety* of the disease. It is not sufficient to ascertain where a disease is situated, and what it is, but you must ascertain what particular form and variety it has assumed; for the very same disease will sometimes be attended by inflammation and with strength, and sometimes there will be no inflammation, and it will be attended by weakness. After the general diagnosis as to the kind of disease, you have to make a very minute one respecting its variety, and all the accidental circumstances connected with it. You cannot take too much pains on these points. I have often been laughed at for spending so much time in inquiring into a case that I cannot cure after all. Well, suppose I cannot —suppose that the accuracy of the diagnosis will only lead me to know that the patient has an incurable affection,—still it is something to know that you cannot cure a complaint; it saves the patient a great deal of useless torment, and yourself a great deal of trouble in making useless attempts. As I said before, the more accurate *we* are in establishing diagnosis, the easier will it be for posterity to treat diseases successfully.

"But in the treatment of disease, and the employment of remedies, there are two things which I am very anxious to impress upon you. After you have ascertained the nature of the disease, and the indication of treatment, the next thing is to use the means properly which are indicated. Now, I believe that in acute diseases our great fault is, want of *activity;* and in *chronic* diseases our great fault is, want of *perseverance.* When we are quite sure of the treatment that ought to be adopted in an acute disease, we may fail from not having courage to put it properly into effect. I am quite satisfied that there are far more patients lost in acute diseases from the want of activity than the excess of it. You find persons who are willing to slur over their business say they do not do this, that, or the other, lest they should do harm; but the fact is, they will not take the trouble to use, or suffer the anxiety of using, vigorous means where the employment of them is justified. It does not follow that, because a man is energetic he is to be rash. It does not follow that, because you ought to bleed a patient freely, you are to bleed him till you kill him; it does not follow that, because

you wish to open the bowels, you are to scour a person out, and reduce him to the last extremity. No person should determine to employ free bleeding, or to give any strong medicine, till he has weighed two things—the danger of the disease on the one hand, and the powers of the patient on the other. If you have ascertained these points carefully, and satisfied your own mind how far you may proceed, then you should employ the means vigorously, and watch the effect of your means. I have never regretted having been too active in acute diseases; but I will own to you, that very often, when I have failed in their treatment, I have blamed myself for not being more energetic. I have, in my life, frequently lost a patient with inflammation, from saying, I will not bleed again till to-morrow, because he may be better by that time. Many people say this is all nonsense; but I have seen it; I have done so, and frequently repented it; whereas I never regretted being active. My judgment has led me to say, he ought to be bled; yet my fears and my fancies have come over me, and I have said, no, I will not be active till there is imperious necessity. This is a thing that happens to all of us, and of which I have repented; but I have never repented of the reverse, because I never think of prescribing energetically unless I have first carefully weighed all the circumstances. Many medicines, in acute diseases, are given most inefficiently on this account. But in chronic diseases, the cause of failure is in the want of perseverance. When, in chronic diseases, you have made up your mind as to what remedy is most calculated to do good—not that it *will* do good, because you cannot say that beforehand, but what remedy is calculated to do good, what is the best you can employ—then persevere; do not change it to-day for this, and to-morrow for that, and then go back again, and then exchange it for something else, and go back two or three times. This is a sort of old woman's treatment, and nothing is more disgusting. But although you have made up your mind to persevere, yet a certain time ought to be allowed; and when you know from experience that sufficient time has elapsed, and yet the thing will do no good, then persevere in it no longer; then change it for something else, but not before.

"Again, with respect to *doses* of medicine. There is no dose which is always proper. There are many medicines given in an inefficient manner as to quantity. Many give them inefficiently as to time, not continuing them long enough; but others give them inefficiently as to quantity. We are told that such a thing has been tried, but it did no good; but we are not told how long it was tried, or how great the quantity. There is no rule for a dose of medicine at all. It is right to commence with the smallest established doses in chronic cases, but if you find it does not produce the good you wish, and yet does not produce any ill effect—for both circumstances must be considered—then you must increase the quantity steadily, and watch it. As a simple rule, you may effect all the purposes you wish with one or two minims of prussic acid; in other cases six or eight are required. Of the carbonate of iron, half a drachm three times a-day will often accomplish your purpose, but in other cases you must give half an ounce. This is the same principle on which you act in other cases. Suppose an individual constipated in the bowels, and you give him a strong dose of physic, and it will not answer; what do you do? You give him a stronger dose, and you go on till, in nine cases out of ten, you effect your purpose. But with respect to other medicines, they are often given in the most inefficient manner.

"Two things are required in a medical man—the one is *knowledge*, the other is a sort of *moral energy*. A man may be most learned, be well read in his profession, be quite aware of every thing, and yet, when he comes to its real use, have no perseverance, no energy, no courage to do what is necessary. On the other hand, if you have courage to do all that is required, if you have energy, yet, if you have not knowledge, then such a man is one of the most dangerous of characters. No person can too strongly condemn energy without knowledge. Two things are thus requisite to perfect the medical character; the one is a full knowledge of his profession, which is to be acquired by reading, by lectures, but more especially by observation, witnessing what you have read and heard lectured about; but the other is that which can only be acquired by practice, and must, after all,

depend much upon native character, and which no person, from merely seeing another practise, can ever attain; and that is, energy to put into execution what his knowledge tells him to do. I am satisfied that it is the want of this energy, and not the defects of our science itself, that has caused physic to be so behindhand as it is. I am satisfied that if we are energetic; if we are constantly on the look-out for facts, constantly trying every thing rational, we may bring our profession to a point of perfection that at present we have no idea of. Patients will always die long before old age wears them out, and death will always be attributable, in some cases, to many circumstances that do not bring our profession into fault. If persons will ruin their constitutions, if they will, for a length of time, expose themselves to unfavourable circumstances, which must injure the body locally or generally, it will be absurd to expect then any means can reform their dilapidated frame; a new body would be required. But, with that exception, I have no doubt that we may ascertain the nature of diseases to such an extent, and acquire such a knowledge of the medicinal power of various substances, some that we already employ, but which are only partially known, and may likewise obtain possession of so many other medicines which at present are not known at all, that we may be able to confer far greater blessings on the community than are now within our power. I believe that, with constant attention and energy on your parts, we may see the profession, even in your day, rise to an excellence it has not yet attained. We may be certain that every exertion we make for the advancement of our profession, however scanty its results, nay, should it entirely fail, will pave the way for success with those who come after us; that it will facilitate their labours; and though we may only toil at manuring and preparing the land, our successors will gather fruit, and practise with success where we failed. With this persuasion, it is our duty to persevere, as the forerunners of those who will come after us with more knowledge, and practise with greater success."

Review.

Quid sit pulchrum, quid turpe, quid utile, quid non.—Hor.

A Description of the Diseases and Accidents incidental to the Horse; wherein the Rock Oil of Barbadoes, or Green Mineral Naphtha, from its Medicinal Properties, has proved a particularly useful Remedy; with plain Directions and numerous Formulas for its internal and external Use in Horses, Dogs, Cattle, Sheep, &c.; also, a Description of the True Rock Oil, whereby it may be distinguished from spurious Imitations. By B. Hart, *Zoatrist.*

The liquid bitumens differing perhaps from the solid, only that the latter are consolidations of the former, have been subjects of considerable interest to the chemist, and have been periodically magnified into immense importance as therapeutical agents. We are old enough to remember when the tar water, so strenuously advocated by the idealist Berkeley, was still considered by some to be a panacea for all the bodily ills that flesh is heir to, and many a nauseous draught of it have we drunk.

The bitumens, although classed among the mineral substances from the way in which they exude from the ground, are of vegetable origin, and in chemical properties do not differ materially from each other. Naphtha and Petroleum, the principal native bitumens, used to be thus distinguished. *Naphtha*, a very light oily substance, sometimes colourless, or of a light yellow colour, found floating on certain springs in Italy, and on the shores of the Caspian Sea, or procured artificially by distillation from Petroleum, containing no oxygen, composed of an equal number of atoms of carbon and of hydrogen (Dr. Ure says one atom of oxygen to twenty-two of carbon and twenty of hydrogen)—highly inflammable—undergoing no change from contact with the atmosphere—insoluble in water—partially soluble in alcohol, and more so with sulphuric ether, and the fixed and volatile oils. *Petroleum* was thicker—less transparent—reddish brown, and greasy—thickens by exposure to air—insoluble in water, and nearly so in alcohol—mixing with ether and the oils. It was found principally in Barbadoes, but occurs in other parts of the world, and in the British Isles. Mineral tar differed from petroleum in being still thicker, and even common coal tar yielded pretty nearly the same chemical analysis.

Now, however, it seems that Naphtha and Petroleum must be used as almost synonymous terms, as Naphtha is a produce of

Barbadoes, or some gentlemen, imagining, and laudably endeavouring to convince their brethren that this West Indian product has much medicinal virtue, have been anxious to give it as imposing a name as they can, and therefore, according to Mr. Hart, it is the Rock Oil of Barbadoes, or Green Mineral Naphtha; or according to the somewhat better nomenclature of Mr. C. Clark, and of a writer in last week's *Lancet* (for the term mineral is superfluous as connected with naphtha), it is Barbadoes Mineral Oil, or Green Naphtha. We will do just as these gentlemen please. It shall be no longer Barbadoes Tar, or Petroleum, but Green Naphtha.

Mr. Hart gives an interesting account of the production of this liquid bitumen:—"At the foot of Mount Hellaby, in the parish of St. Andrew's, a brook commences which flows in a north-easterly direction into the sea. About five hundred yards from its source, there appears on its surface a film of the Rock Oil, or Green Mineral Naphtha, exuding from each side of the hills through which the brook passes, and hence called by Lygon the Tar River. The water which springs from the south and west side of the hills, and flows to the westward, is not impregnated with the Rock Oil. From Mount Hellaby there is a ridge extending to Mount Hall, and a corresponding one extending to Turner's Hall, forming a narrow valley between these two high ridges: from the declivities on each side of this valley the greater portion of this Rock Oil or Green Mineral Naphtha exudes, and flows into the brook above alluded to.

"Close to the brook, and a little to the north-west of Mount Hall, the point of exudation is called 'Pottery;' so named from being contiguous to the clay employed in the manufactory of pots. There is here a natural tank, always full of water, and on its surface the Rock Oil is found, forming a film. By the application of the palm of the hand, the substance adheres to it, and is then scraped off on the edge of any vessel, as a calabash, for instance, which is the usual mode of collecting it, and thus freed from water. This Rock Oil has a greenish tint, and in some points of view a rich olive shade."

Much medicinal virtue has long been attached to this "Green Naphtha." The writer in the *Lancet* says, "In the island itself, and in other parts of the West Indies, it has always maintained the highest character, and is constantly employed in tetanic cases, and in the leprous and other cutaneous eruptions so frequent in those latitudes.

"Within the last few years the subject of these springs has excited great interest there, and a regular investigation has been made of them by the army medical staff at Barbadoes: in a

report also addressed to the House of Assembly by Mr. Abel Stuart, in July 1830, proposals were made for building a hospital near the springs, for the reception of those cases in which their products had been found thus highly efficacious, and a bill has since passed for effecting this humane and useful object."

We have most to do with it as a veterinary medicine. Here Mr. Hart shall speak for himself.

"When the *true* rock oil is administered internally, its action appears to be that of a mild stimulant, and of such a particular nature as may be advantageously employed in all cases requiring such a remedy. It also appears to possess a singular power of allaying irritation; whereas most of those substances which have been used in lieu of it, as common tar, &c. act more or less as irritants, especially when they are applied externally. From its use, the different functions, as those of the stomach, intestines, liver, kidneys, and skin, are promoted and increased; and of so powerful and penetrating a nature is the *true* rock oil, with respect to the horse, that when he has been largely dosed with it, and soon after exercised, the rider may, in many instances, very perceptibly distinguish the odour of it: when a large dose, as from half a pint to a pint, is exhibited, a laxative effect is most frequently found to follow.

"In very active inflammatory affections, our own experience will not warrant this medicine being trusted to alone, nor have we been in the habit of using it in the early stages of active inflammation; but in a communication from Mr. Leigh, an experienced veterinary surgeon at Bristol, he therein states that he has been in the habit of using it for inflammation of the lungs and kidneys. After the active symptoms of inflammation have subsided, we can bear ample testimony of its efficacy, and apparently to the particular power it possesses of stimulating without producing irritation, and possibly also to its allaying it at the same time.

"As an internal remedy, this substance can be administered to horses and other animals, either in the form of balls, which may be made by mixing it with some sort of powder, as linseed meal, common flour, liquorice root powder, &c. or it can be given as a drench, by first combining it with an equal quantity of treacle, with which it easily unites, and afterwards mixing it with a proper portion of thick warm gruel. It should be administered according to circumstances, to horses, in doses from six drachms to an ounce, up to eight or twelve ounces.

"Externally applied, the rock oil appears to act as a moderate stimulant, and to produce its effects without irritation, but rather to allay it when properly applied. It promotes absorption in all

parts and textures, particularly cleanses and softens the skins, keeps the hoofs pliable, renders them tough, and less liable to split or crack, by preventing brittleness; and when regularly applied to the wall, sole, and frog, not only corrects putrid discharges, and keeps the part soft, but in a much more natural state; and if applied also to the coronet, allays heat and irritation, the effects of shoeing and hard travelling.

"The rock oil will be found highly beneficial, and may be generally advantageously exhibited in the following affections and sequels of diseases. In nearly every description of cough, whether recent or chronic, particularly when arising in consequence of debility. In all cases of broken wind, thick wind, and roaring. At the close of all inflammatory diseases, which affect the organs of respiration after the more active symptoms have been subdued or subsided; as strangles, colds*, distemper, inflammation of the lungs. For promoting condition in horses, especially hunters; for improving their wind; and, during the autumn, while a change is taking place in their coats, and cases wherein the animals are hide-bound, the rock oil will be found a very valuable medicine: it will also prove of great service in horses that have worms, provided it is regularly administered night and morning for a short time: the rock oil may also be employed advantageously in all cases of glanders and farcy. Lock-jaw (tetanus), spasm, and convulsions in the horse, are affections wherein the rock oil has proved very beneficial in the island of Barbadoes; and it appears that a horse is very seldom lost there from an attack, notwithstanding it is of common occurrence in that island†; whereas, in this country, horses so affected rarely recover from its influence.

"In training horses for racing, the rock oil will be found extremely valuable, from the remarkably good effect it has on all the organs of respiration, more particularly the mucous membrane of the air passages In the distemper, a frequent visitant in the racing stable, and a great annoyance to the training groom, the rock oil, judiciously exhibited, will prove of the utmost value.

"In the island of Barbadoes, a horse is very frequently seen, especially when intended for a long journey, with tow or linen rag

* "When this medicine is given to post-horses labouring under colds or distemper, the end is best effected by a moderately full dose, in a drench, with treacle and gruel; to be repeated every day, or every other day, as circumstances require, avoiding, at the same time, all depletive measures."

†"Negro children are extremely liable to spasmodic or tetanic affections, and which is a principal cause of mortality amongst them. Dr. Hilliary has recommended the following embrocation as a remedy: rock oil, 3 oz. mixed with strong rum, 3 oz."

wrapped round the bit, well saturated with the rock oil; and there is every reason for supposing that the wind, power of breathing, and the vivacity of the animal, are much improved by it.

"The rock oil is a most valuable external remedy in mange, and most other skin affections; it may be also employed internally at the same time with great advantage.

"The rock oil is likewise a good application to make the hair grow, when it falls off, or is removed by accident.

"In most cases of grease, cracks in the heels, mallenders and sellanders, the rock oil, regularly applied, will prove an effectual cure; and for grease it may be used in conjunction with astringents, or after them, as circumstances may require.

"After the inflammation and increased heat* of the parts have subsided, in strains, or sprains in the back, sinews, &c. and bruises in most parts, the rock oil is of the greatest utility.

"For thickening of tendons, or their sheaths, windgalls, and incipient spavins, in conjunction with proper rest, provided there is no particular active inflammation present, the rock oil will be found very useful, not only in checking the progressive disposition of such affections, but, in most instances, of effecting a removal.

"As a remedy for removing an opacity in the cornea of the eye, the rock oil will also be found useful.

"In most instances of broken knees*, treads, &c. and in recent wounds, the rock oil proves the best application; as well as in sloughing wounds: it is likewise a good digestive.

"We are enabled positively to assert, that hitherto no substance has been used or proposed, that embraces any thing like the manifold advantages and valuable softening properties, as the rock oil; for, when regularly employed, it not only toughens the wall of the hoof, but prevents it from becoming brittle; and if used as a stopping, the sole and frog are likewise kept admirably soft, moist, and elastic; and by its singular penetrating power, when applied to the coronet and pastern, in most instances allays pain and irritation.

"The rock oil is by far the best and most effectual remedy that can be possibly used, for the cure of all affections of the skin in dogs, particularly mange, and that form of it termed the red mange.

"In its pure state, it is the best application that can be resorted to for swelled and sore feet of hounds, and other sporting dogs.

* "The following lotion, frequently applied to the part with a sponge, will be found serviceable in subduing increased action and heat:—Muriate of ammonia, 1 oz.; distilled vinegar, 4 oz.; spirits of wine, 2 oz.; water, 2 pints: mix."

† "For a new method of treating broken knees, the reader is referred to an Essay on the subject by an able and experienced practitioner, Mr. F. C. Cherry, of Clapham, published by Simpkin and Marshall."

"In distemper, and dry husky coughs, likewise in cases of worms, if judiciously used, considerable benefit will be derived.

"In neat cattle, the rock oil may be advantageously employed in many instances, particularly in such diseases as are termed quarter evil or ill, blood-striking, black quarter, joint felon.

"For the scab or shab in sheep, and in foot-rot, the rock oil will prove one of the best remedies."

This is saying a great deal, and a great deal more, we apprehend, than experience will justify. Mr. Hart can have no intention to deceive us: he has no unprofessional purpose to answer —we acquit him entirely of that; but, like a great many zealous men and zealous experimentalists (we wish that we had more of them), he is induced to fancy that he has discovered the *summum bonum*, because he has ascertained the existence of some valuable properties in a certain substance. We have lived long enough, however, to know that these boasted "cure-alls" prove in the end "humiliating memorials of credulity and infatuation." We do not, however, think that this will be quite the case here. Although the tar water of Bishop Berkeley is now discarded, even by credulity itself, we are inclined to believe that the "Green Naphtha" will become a valuable addition to the veterinary pharmacopeia. As an *adjuvant* in the cure of mange in the horse and the dog, we have had experience of its beneficial effect, and we are certain that it has materially *assisted* in the removal of some chronic diseases of the respiratory passages, both in horses and cattle. So strongly recommended by Mr. Hart, it deserves a trial, and we hope will be fairly tried by our brethren; and Mr. Hart's little book will be useful in supplying the formulæ under which it was given or applied by him in the various cases which he describes.

Extracts from Journals, Foreign and Domestic.

We extract the following paper, by M. Lautour, from the *Journal Pratique* (April 1831), as an illustration of the opinion of some of our continental brethren on a very important point of veterinary jurisprudence, and likewise a kind of specimen of French veterinary medical consultation. Neither of the gentlemen consulted seem, however, to have understood the case, which was clearly one of pleurisy.—Edit.

A colt of two years old was sold on the 1st of March, 1831, by M. C. to M. L. The purchaser took possession of the animal,

and led him away; and although the weather was cold and it rained fastly, he made him cross several rivers, and travel through a road filled with water. The colt, which had for a long time only gone out of the stable to drink, appeared to shiver much during the journey, which was nine miles. Being arrived at the house of his new proprietor, he was evidently ill, and on the morrow his flanks began to heave. A farrier was sent for, who bled him, and passed some setons, and attended him until the 7th of March, when he died.

M. L. desired a veterinary surgeon to open the animal, to ascertain whether there was any unsoundness at the time of sale; and M. C., by whom I was accustomed to be employed, desired that I would attend. The examination was made forty-eight hours after death.

The cellular tissue was infiltrated throughout. The serous membrane of the chest was thickened, with patches of red and black, and the sac of the pleura was thoroughly filled with a yellow liquid, in which floated some flakes of albuminous matter. The lungs, and especially the left, were compressed and flabby. There was not the slightest tubercle or abscess, but the whole pulmonary tissue was supple, and of precisely the same construction and appearance. Some lymphatic ganglions were a little enlarged, but they otherwise preserved their natural appearance and organization.

Was the colt unsound at the time of sale?

The gentleman whom I met in consultation thought that he was, but I contended for the contrary. My opponent argued that dropsy is always a chronic disease, and that the compressed state of the lungs is a character of old affection of them, the existence of which was confirmed by the enlargement of the ganglions; and that such lesions indicated unsoundness *(l'affection rédhibitoire)* with greater certainty than either tubercles or vomicæ would have done.

I replied that dropsy was not a disease, but a symptom of disease, or rather the effect of some inflammation; and that it is not so much unsoundness of itself, as from being the result of some chronic affection; that the flocculent albumen was the simple consequence of effusion, and was formed in a very little while; that the compression of the lungs could not indicate old unsoundness, for the strongest of all reasons, that it could only exist when they were squeezed together by a liquid which the thoracic cavity could scarcely contain; and that beside, the pulmonary organs, supple and spongy, must necessarily be diminished in bulk, when they had sustained this pressure for the space of two days after death; that the same thing was ob-

served in cattle that had died of the hoove; and that it would have been absurd there to have searched for an old unsoundness, to explain a phenomenon which was mechanically produced.

I then asked whether the enlargement of the lymphatic glands was to be considered as a cause or effect when inflammation so intense was manifest in the system to which they belonged. My decided opinion was, that their enlargement was the consequence of general inflammation of the respiratory organs. The sub-maxillary glands are sympathetically excited by the influence of causes far less active.

In my opinion, chronic peripneumony, which must have been the unsoundness, if any here, was characterised by induration, grey or white, of the lungs; by vomicæ or softened tubercles; by adhesions organized and become solid: in a word, by that which attests some ancient disorganization, of which I saw nothing here.

Beside this, I affirmed that the malady was the fault of the buyer; that it was after the animal had been delivered that the influence of wet and cold had produced a re-action, so much the more dangerous, as the colt had not been accustomed to be exposed to the variations of the atmosphere; and that the inflammation which destroyed him might perhaps have yielded to rational treatment, which an empiric, with every wish to do good, was incapable of adopting; and that it was not only in veterinary medicine that the distinction which I endeavoured to establish was recognised between the lesions which indicated acute, and those which marked chronic affections of the chest. In the treatise of M. Andral on diseases of the chest, in volume 1, page 231, under the title "Pleuro-pneumonia, second stage," are the following descriptions:—

"18*th Case*.—Red hepatization of the superior lobe of the right lung; its tissue is granulated, and it sinks in water. The other parts of the pulmonary parenchyma present a sero-sanguineous engorgement, which seems to have been effected during the last agonies. Albuminous membraniform concretions cover the pulmonary and costal pleuræ, but no adhesion has taken place.

"19*th Case*.—Red hepatization of the inferior lobe of the left lung; sanguineous engorgement of the right lobe; albuminous membraniform concretions on the costal and pulmonary pleuræ. Effusion of a glassful of red serosity in the thoracic cavity.

"21*st Case*.—Hepatization of the three lobes of the lungs."

In the observations which follow the last case, M. Andral thus expresses himself:—

"When the patient entered the hospital, auscultation and per-

cussion announced the existence of this hepatization not yet complete in the middle and inferior lobes; the superior lobe was not yet in a state of congestion, but in the following days (five or six) it had rapidly hepatized." Here is sufficient to prove that the red hepatization may develope itself in a short space of time; beside which, it is to be observed, that if these lesions characterise the second stage of pneumonia, and which he does not dare call a chronic disease, our colt, which presented no trace even of these lesions, must have exhibited only the first stage of pneumonia.

In page 348, under the title of "Pleuro-pneumonia, third stage," there is the following important case:—

"28*th*.—The superior and middle lobes of the right lung were dense, compact, and sunk in water. Being cut into, they presented a mixture of red and grey striæ, unequally distributed through the substance of the lobes. Where the red striæ were found, the pulmonary tissue was in a state of red hepatization; where the grey existed, the parenchyma of the lung could be reduced *by a slight pressure to a dirty grey pulp, whence oozed a great quantity of fluid of the same nature.*" I have underlined the lesions which would have indicated chronic unsoundness in the domestic animals, and of which there was not the slightest trace in the colt.

In page 420, under the 48th case, we read, "Tuberculous excavations, to the number of three or four, in the upper part of the lung, and each of these cavities filled with a puriform fluid, in which floated little particles of tuberculous matter." When a horse shall present to me lesions like these, I shall not hesitate to pronounce him to have been long unsound; but we had none of these lesions in the case before us.

The Difference between the Blood of a Jaundiced and Healthy Person.

A prize was offered by the French Academy for the best analysis of the blood of a person labouring under jaundice, compared with that of a person in health, and establishing the chemical differences. One essay alone was offered. The author first described the constitution of the blood in a healthy state, and he found in that fluid (independent of water, albumen, fibrine, crystallizable fatty matter, colouring matter, osmazome, some soluble extractive matter, soda, urea, and many salts, as described by Berzelius and Marcet) an *oily matter*. He described a new method of separating the colouring matter, by treating the blood with sub-acetate of lead. He endeavoured to trace the character of the blood as affected by difference of sex, age, and tempera-

ment, and ascertained that the serum is more abundant in the blood of women and persons of a lymphatic temperament; and albumen, fibrine, and the red particles comparatively deficient. He then enquired whether the blood of persons labouring under jaundice contained bile, or some of the materials of that fluid, or some of the immediate principles which compose it, as a yellow matter; margaritic and oleic acid; a peculiar resinous acid; chloresterine; a fatty matter not acid; an exceedingly bitter alkaline matter; a colourless saccharine principle; and two colouring principles, one of a blueish green, and the other a yellow orange. These principles, supposing that they exist in the blood of jaundiced persons, can only do so in small quantities; can have no marked characters; and, consequently, their presence is difficult to be ascertained. M. Chevruel had already detected the blue and yellow colouring principles in the blood of infants, attacked with jaundice: the author of this memoir also ascertained their existence, and that of another principle, composed of albumen and soda, little or not at all soluble in water. He also adds, that the blood of jaundiced persons contains only seventy-seven instead of 128 parts of colouring matter out of a thousand.—*Journal Pratique, May*, 1831.

Miscellanea.

Theory and Treatment of Broken Wind.

By Mr. Knowleson, *Fifty-seven Years in full Business.*

People have had various opinions respecting its cause, and why some horses are more subject to it than others; but of all the opinions hitherto delivered, that of Mr. Gibson seems the best founded. He thinks that it is frequently owing to the hasty or injudicious feeding of young horses for sale; by which means the growth of the lungs, and all the contents of the chest, are so much enlarged, that in a few years the cavity of the chest is not sufficient to contain them, when they expand themselves to perform their proper functions. Nor is this opinion founded upon bare conjecture; for horses that have died broken-winded have been opened, and the lungs and other parts found too large for the chest. But although hasty feeding is often the cause of this disorder, yet it is not always, for a narrow chest may cause it. It has been observed, that horses rising eight years are most subject to it. The reason of this is, because a horse arrives at his full strength and maturity at that age. At six he generally finishes

his growth in height; then he lets down his belly, and spreads; and all his parts gain their full size; so that the pressure on the lungs and midriff is now increased.

Also, when the horse catches cold and gets a dry cough the lungs are much larger than they ought to be; and at that time riding sharply is enough to force the lungs so hard against the midriff as to force a passage through it*.

A few years back, some people pretended to cure this complaint by boring; but none were ever cured by it yet, nor ever will be. They made a hole above the fundament to let out the wind that was forced through the midriff into the bowels; and this caused the horse to be continually discharging wind out of the place; so that the pretended cure was worse than the disease.

Dissections of horses that have died broken-winded have sufficiently proved the truth of the above observations; and that not only the lungs, together with the heart and its bag, were preternaturally large, but also the membrane which divides the chest; and that the midriff was remarkably thin. In some horses, the disproportion has been so great that the heart and lungs have been almost twice their natural size, yet perfectly sound, and without any ulceration whatever, or the least defect in the windpipe or its glands.

From these observations it abundantly appears, that the enormous size of the lungs, and other contents of the chest, by hindering the free action of the midriff, is the principal cause of this disorder; and as the lungs are found much more fleshy than usual, they must consequently have lost a great part of their spring and tone.

Symptoms.—The first symptom of a broken-wind is an obstinate dry cough, which is neither attended with sickness nor loss of appetite; but, on the contrary, with a disposition to foul feeding, eating the litter, and drinking large quantities of water.

Prevention.—When a horse is troubled with an obstinate dry cough, and eats his litter, it will be necessary to bleed him, and to give him the mercurial physic already prescribed, repeating it two or three times. Afterwards give the following balls for some time, which have been found of the greatest service:—

Four ounces of gum ammoniacum, four ounces of galbanum, four ounces of assafœtida, four ounces of squills, half an ounce of saffron, six drachms of cinnabar of antimony; make the whole up into balls, with honey and a little liquorice powder, and give one about the size of a pullet's egg every other morning. This is a very good ball for a dry cough.

* "The midriff, or diaphragm, is that which is commonly called the skirts, and separates the chest, where the lungs lay, from the bowels."

Some horse dealers give broken-winded horses a quantity of shot when they carry them into the market for sale; and I suppose it is to draw the bowels from the midriff, so that the disorder may not be discoverable; but at the same time there is great danger of killing the horse.

But it is not enough to give proper medicines: the horse's diet should also be carefully attended to at the same time, if we would hope for success. In order to this, the horse should eat very sparingly of hay, which, as well as his corn, should be wetted with chamberlye, which is much better than water; and in this disease the horse is always craving after water. Chamberlye is best for this purpose, because of the volatile salts which it contains, as they are the means of removing the thirst: for the same reason, garlic is very efficacious in this disorder. Two or three cloves being given in each feed, or three ounces bruised, and boiled in one quart of milk and water, and given every morning for a fortnight, has been found very serviceable. So easy a remedy should never be neglected; for by warming and stimulating the solids, and at the same time dissolving the tenacious juices which choak up the vessels of the lungs, it greatly relieves this complaint.—*Knowleson's Cattle and Horse Doctor*, p. 46.

The Partridge,

The Isle of Chios abounds in this kind of partridge, which live in the same houses with the inhabitants. Each person keeps a number, greater or smaller according to his inclination or circumstances: a public keeper is appointed for them. At day-break he calls them out of their habitations, by whistling: as soon as they are all assembled, they follow him, as sheep do the shepherd, into the fields, where they are to feed during the day. At night fall, collected into a flock by the same signal, they follow their keeper to the village, and there separate, going to their respective homes and roosts.—*Busbequius's Travels.*

French Post Horses.

We took post-horses for Boulogne, if at least we may call those post-horses we rode on, as lean they were as Envy is in the poet. Neither were they only lean enough to have their ribs numbered; but the very spur-galls had made such casements through their skins, that it had been no great difficulty to survey their entrails. A strange kind of cattle, in my opinion; and such as have neither flesh on their bones, nor skin on their flesh, nor hair on their skin. All the neighing we could hear from the proudest of them was an old dry cough, which, I assure you, did much comfort me; for, by that noise, I first learned there was life in them. Upon such anatomies of horses, or, to speak more properly, on such heaps of bones, was I and my company mounted.—*Heylin's Voyage to France.*

The Goat Sucker.

The harmless, unoffending goat sucker, from the time of Aristotle down to the present day, has been in disgrace with man. Father has handed it down to son, and author to author, that this nocturnal thief subsists by milking the flocks. Poor injured little bird of the night, how sadly hast thou suffered; and how foul a stain has inattention to facts put on thy character! Thou hast never robbed man of any part of his property, nor deprived the kid of a drop of milk.

When the moon shines bright, you may have a fair opportunity of examining the goat sucker. You will see it close to the cows, goats, and sheep, jumping up every now and then under their bellies. Approach a little nearer—he is not shy—he fears no danger, for he knows no sin. See how the nocturnal flies are tormenting the herd, and with what dexterity he springs up and catches them, fast as they alight on the belly, legs, and udder of the animals. Observe how quiet they stand, and how sensible they seem of his good offices, for they neither strike at him nor hit him with their tail, nor tread on him, nor try to drive him away as an uncivil intruder. Were you to dissect him, and inspect his stomach, you would find no milk there. It is full of the flies which have been annoying the herd.

Waterton's Wanderings in South America, p. 139, 140.

Sagacity and Fidelity of the Dog.

In visiting one of the churchyards here, where they have got into the way of burying in a row and going regularly from one end to the other, I found a dog buried in it, through the affection of his master, who, being a man of property, had travelled the continent, and taken this dog to Rome with him, and left him there with a friend, and returned to Edinburgh. Six months after his master had left, this dog, it seems, leaving Rome, set out alone in quest of his master; and, tracing his route through Italy, over the Alps, through France, he at length arrived at Calais. Though often prevented by the sailors, this dog, at length, was permitted to come on board at Calais, by means of a gentleman who wished to have it, though by this time nothing but skin and bone, having had nothing but what he could steal or pick from the dunghills on the way. All the way from Calais to Dover the gentleman was attentive to this dog, and thought he had gained his affection; when to his surprise, a few yards before they arrived at Dover, the dog jumped overboard, and, swimming ashore, ran off as fast as he could. The collar on his neck told to whom he belonged; and in less than six weeks from the time he had left Rome, this faithful animal arrived at his master's house at Edinburgh.—*Travels in Scotland, by the Rev. J. Hall,* vol. ii, p. 600.

THE

VETERINARIAN.

VOL. IV. AUGUST, 1831. No. 44.

Communications and Cases.

Ars veterinaria post medicinam secunda est.—VEGETIUS.

A CASE OF FRACTURE OF THE RADIUS,

By Mr. J. W. GLOAG, *Londonderry.*

March 31.—A BLACK entire cart-horse, the property of Mr. Beard, was grazing in a field when some cart mares were accidentally turned into it, and he received a very severe kick a little above the knee, which immediately lamed him; he was able, however, to walk, and managed to get home. The next day, upon being turned out of the stable, the leg suddenly gave way and was rendered useless, with the point of fracture plainly visible by the ends of the bone being separated, and the fractured part hanging powerless. Early on the 1st of April I was called in, and on examination I plainly perceived that there was a simple fracture of the radius, about one inch and a half above the knee; the ends of the fractured bone could be heard distinctly grating against each other, both in advancing the leg or turning it sideways from the body. The animal was placed in a sling made of a large piece of canvass, which came under the belly and between the two fore legs, supported in front by a breast piece and the collar, and behind by the crupper and harness; he was not completely elevated from the ground, but it admitted of his resting himself in the sling, or relieving himself by occasionally standing. The leg was first well bathed with warm water, and the ends of the bone brought as true to their position as possible; lard was then smeared over the leg considerably above and below the fracture. Having immersed some thin slips of green wood in boiling water until they would readily bend to the shape of the knee, I placed them all round the joint, reaching about nine inches above and six below the knee. The ends of the laths were tied round with tow, to prevent them wounding the muscles of the arm. The splints were then firmly tied round in every direction, and after having bled him he was left to his

fate. About a fortnight after, when the bone was uniting, he became extremely restless; knocking his foot against the ground, notwithstanding all our endeavours to prevent him. In about six weeks he was taken from the slings very much emaciated, and with a considerable ossific deposit above the knee. For the first two or three days he knuckled over on the pastern, but he gradually regained his strength, and, with the exception of his turning the leg a little outwards in progression, he is as useful as ever for common purposes. I have cited this case, because I think, that in many cases of fracture, we should be justified in endeavouring to save the animal.

A CASE OF INVERSION OF THE BLADDER OF A MARE.

By the same.

April 25.—A VALUABLE thorough-bred mare, in high condition, the property of Dean Gough, after a very laborious parturition, ejected the rectum in large volumes, but which was happily returned; on the same day part of the uterus was likewise thrown out; and on the following morning I was called in.

26*th*.—The animal seemed to be in great pain, rising and lying down frequently; endeavouring to void urine, and only bringing it away in small quantities; part of the uterus projecting from the vagina and lying in folds; continual straining as in the throes of labour; pulse 66 and weak; loss of appetite and indifference to the foal. V. S. 5 quarts; cold astringent injections of equal parts of nitre and alum to be frequently applied; diet, bran mashes, soft grass, &c. Towards the evening the inversion seemed to have returned; she regained her appetite, and lay down and rose less frequently.

27*th*.—Still improving; the difficulty in voiding urine much the same; in other respects the animal is lively and doing well; injection continued.

28*th*.—On retracting the labia pudenda at three or four inches inwards, and inferiorly, I could plainly see what I considered to be a large tumour or inversion of some part of the uterus. This, with the other parts, had been seen to project from the vagina in her laborious throes. On passing my hand up to examine it, I could not at all satisfy myself about it; it was globular and bulbous, resembling a very large polypus, and in appearance was like the other parts of the uterus. I tried in vain to return it by pressure against it, but that was totally useless, as, on the pressure being removed, it returned as before. The difficulty of voiding

urine was still the same. I then altered the injection for a decoction of oak bark, but it was of no use. I was extremely puzzled to account for the symptoms. I had refrained from passing the catheter, fearing the uterus might be again ejected in her laborious throes: but on now endeavouring to do so, I could find no passage. Inversion of the bladder, until then, had never entered my imagination, and I could not even then believe it: the inversion of the uterus, as I had considered it, was hard and turgid, and seemingly one dense substance.

May 2.—The mare got worse towards the evening, incessantly straining and groaning.

3*d*.—In her laborious throes she had again ejected the inversion, and it now hung several inches below the vagina: I recommended that she should be destroyed, and she was sent to my yard for the purpose; I kept her, however, during the day, endeavouring to replace the parts, and by bleeding and sedatives to lower the inflammatory symptoms. She became gradually weaker during the day; the throes more laborious and distressing; the pulse rose to 90 before night. One symptom which attended her was a constant endeavour to get as high as she could with her fore feet. At times during the night she was totally insensible through excess of pain.

Very early on the 4th she was shot.

Post-mortem examination.—There was the highest degree of inflammation of the rectum; the bladder was completely inverted, the fundus projecting from the vagina, and the meatus was distended as thick as my wrist. The parietes of the bladder were fully one inch and a half thick, and it would have been impossible to have determined that there was fluid inside until it was opened. In the cellular membrane, between the anus and uterus, there was a collection of urine, about a pint and a half; but from the intense state of inflammation of the anus and surrounding parts, it was totally out of my power to trace the ureters; one or both must have been ruptured. The animal lost her milk on the third day, and the foal was fed upon cows milk. For the first fortnight he consumed fifteen quarts per day, and afterwards much more: it thrives surprisingly.

CONSIDERABLE ABSORPTION OF THE SUBSTANCE OF THE BRAIN.

By Mr. King, sen., *Stanmore.*

Reading in The Veterinarian for May, an account (extracted from *The Lancet*) of hydatids in the brain of sheep, it

brought to my recollection an accident which happened to a horse of Mr. George Ellmore's, which I have extracted from my memoranda.

Now six years past, Dec. 1, a horse belonging to Mr. George Ellmore was sent into my stables with a very small punctured wound on the head, apparently caused by a nail or a sharp-pointed prong of a fork, through the lower edge of the right temporal muscle, and which, on examination with a small surgeon's probe, proved to pass through the parietal bone, just above the coronary suture. It had the appearance of having happened not very recently. I made an extensive crucial incision through the scalp quite down to the bone directly over the puncture, and applied blisters to the surrounding part; gave physic, and bled.

2*d.*—Repeated the bleeding, and an aperient ball.

3*d.*—Bleeding and ball repeated; in the evening the bowels freely acted on.

4*th.*—External wound suppurating kindly, and all the functions going on regularly: repeated the blisters. At night a degree of stupor was observed; repeat bleeding.

5*th.*—Delirious, and requiring much restraint.

6*th.*—In the morning applied a trephine, making the original puncture the centre, and expecting, on the removal of the bone and division of the membranes, a flow of some fluid. Nothing followed: I then extended the opening through the membranes to the full extent of the opening in the skull, and, looking into the head, was surprised to find almost a complete cavity. Nearly two-thirds of the cerebrum on that side was gone, and what remained at the back part of the skull was covered with a dry black coating, presenting an appearance much like the pigmentum nigrum when the humours of the eye have been evacuated. The horse died that night, and, thinking at the time it was a case not likely to occur again, I made no further inquiry, which I now much regret.

ON MARES HAVING TWIN FOALS.

By T. Millington, *Esq., Great Titchfield-street, London.*

In that part of Mr. Karkeek's excellent paper "on Breeding," in The Veterinarian for July, I observe that he alludes to the very unfrequent circumstance of a mare producing twin colts, together with the belief that both are never brought forth alive. I beg to state that I have known more than one instance in which they have been foaled living: the most recent is that of a mare in Oxfordshire. I saw her in the last summer with twin *colts*

at her foot; both of them were of the ordinary size, and remarkably handsome, of the colour of the dam, which was bay, and they were marked as nearly alike to her as possible. I saw them in January, and again in April: they were then as much grown as foals at that age usually are when they come singly. The height of the mare is about fifteen hands one inch, and she shews breed. Another similar instance was in a mare of the cart breed, several years ago, but whether the twins were colts or fillies, or one of each, I do not at this time remember. When I saw them, they were about a month old.

A servant now living with me, who was brought up in the country, tells me, that whilst he resided with a farmer about seven years ago, near Chobham, in Surrey, one of his cart-mares brought twins alive, one of which grew into a fine animal; the other survived four or five days only.

SOME UNUSUAL DISEASES OF SWINE.

By Mr. W. A. CARTWRIGHT, *of Whitchurch.*

I SAW six pigs, two months old, ill at one time, though attacked at different periods; their respiration very quick; husking, and foaming at their mouths. They could not bear to be pressed about their throats, and they swallowed liquids with difficulty. To some jalap was given, to others castor oil and goose oil; one was blistered under the throat, and all bled by cutting off their tails; but they all died in the course of forty-eight hours from the commencement of the disease.

On examination I found much inflammation under the jaws and throats, and a good deal of swelling with effused serum. In some of their windpipes, and the branches of the bronchiæ, there was a great deal of mucus, but no apparent inflammation. In one the heart appeared to be inflamed, but, most probably, sympathetically.

In a sow that I once examined, and that I fancied had eaten hot meat, I found half of the stomach (the pyloric portion) and most of one side considerably diseased, being schirrous. The external coat was about a quarter of an inch thick, the internal one-eighth of an inch thick, and of a yellowish brown colour, and sadly ulcerated towards the pylorus. The central stratum was of a whitish colour. There was also a good deal of serum and lymph effused between and throughout the coats where the disease appeared. The other part of the stomach was a *little thickened.*

The chest had nearly a gallon of water in it; but no part of the chest or pleura seemed in the least diseased or inflamed. Some of the bronchial tubes contained a great many small worms an inch long, and as thin as fine needles. A short time before she died her breathing was very laborious, but when she was first taken ill there was frequent vomiting.

I saw in a paper of *Bell's Weekly Messenger*, of Aug. 10, 1829, the following statement: "At a recent sitting of the Academy of Sciences in Paris, a paper was read by M. Roulin on the ergot in the Indian corn (maize); in which it was stated, that the use of the corn in this state, in South America, produces epidemic diseases, and has the singular property of causing the hair of the head to fall off. Pigs fed with this corn also lose their hair, and shew symptoms of paralysis in the hind quarters."

Pigs sometimes "strike," similar to the attack of blood or inflammatory fever in cattle, and are emphysematous in some part of the bodies.

In 1825, I saw a pig that was taken ill in the following manner: He was a little stupid and dull, and wandered about the stye unconsciously for a few minutes, and would then appear to be quite well; but in a few days after he became worse: he would then move forwards until he came to the wall, and then went backwards until he came to another wall, and made a grunting and squealing noise all the time he was in the fit, which continued for a few minutes, and sometimes longer; and he had them every quarter of an hour, and even oftener. His fits continued to increase; and after he had been so for about five days, he would, after so backing himself, fall down at full length, stretch out his legs and tumble about, and appear as if dying, and make a shrieking noise and appear in great pain, and seem to be blind. His pulse was very quick and full during the fits, but subsided a great deal when they were over. He ate at intervals between the fits when food was *put* to him. He continued in this latter bad state for three or four days, and got well in a few days after. I gave him salts and calomel during his illness, bled him in the tail and ears and between his claws; but little blood, I fancy, was obtained from all the places: and I kept his head wet with cold water.

About the same time a miller in this neighbourhood lost five or six in a similar way, but I had not an opportunity of opening any of them.

ON DROPPING AFTER CALVING.

By Mr. Leaver, *of Willingdon, Sussex.*

This disease does not seem to be connected with either easy or difficult calving, nor yet with the age of the cow; but cattle in high condition appear to be more liable to it than those that are poor. It attacks them, however, in every condition, and the attack is very different in different cows, as well as the time of attack after calving. Some are not seen up after calving; and I recollect one instance in which it did not happen until a fortnight after calving: it generally, however, comes on before the fourth day. The beasts are sometimes attacked very violently; they lie stretched out, not able to raise their heads; and the pulse not to be felt. They swell very suddenly, and seem in much pain; and death takes place from six to eighteen hours. This, for the most part, occurs in fat cows.

Sometimes they are down, with apparently nothing more the matter with them than that, unable to rise, they lie in a ruminating position, eat and drink, and chew the cud, as usual; and the evacuations are but little altered. In this state they continue from two days to a fortnight, when they get up and are well. I never knew one get up after lying longer than a fortnight, nor did ever know any benefit from attempting to sling them.

At other times their bowels are highly constipated; they then mostly lie with the head doubled towards the flank: they are very dull and express great pain.

The treatment must vary according to the attack. In an early stage, and the cow in good condition, and evident heaving and fever, bleed very freely. Give sulphate of soda 12 oz., and nitrate of potash 2 oz., with castor oil, combined with tincture of opium and sweet spirits of nitre. I back-rake, and horn down some gruel. If called in in more advanced stages and where it seems to be simple paralysis without much constitutional affection, I open the bowels with salts and oil, cover the loins with a fresh sheepskin, and allow the animal plenty of sweet gruel (which she will generally drink very freely), and bran mashes to eat, but not much solid food. If swelling comes on, or the cow begins to be feverish, and the breathing is quickened, I bleed; otherwise I do not. In both cases, if evident weakness follows, I give tonic medicines, but depend mostly on good gruel; and in every stage and case I am most anxious to get the bowels open with salts and oil, and copious injections; for as soon as the bowels are opened, the cow often gets up and speedily recovers.

We have cases of paralysis in cattle similar to this, independent of calving.

ON THE OPERATION OF NEUROTOMY, AS CONNECTED WITH SOUNDNESS.

By Mr. W. Simpson.

"Can a horse upon which the operation of Neurotomy has been performed, ever afterwards be considered sound?" is a question I have often heard agitated, and upon which different opinions exist amongst those who rank high in our profession. Mr. Sewell, to whom the credit of rendering this practice beneficial decidedly belongs, has said in court, that no horse can be sound after this operation has been performed upon him; and this opinion, I believe, is entertained by other eminent men. Before we admit such a sweeping assertion, let us pause awhile, and briefly consider the operation itself, some of the circumstances connected with it, and the diseases to which it is applicable. The metacarpal, or their continuation the plantar nerves, are selected for division, according to the seat of disease, &c. I will superficially trace these nerves from their origin. The axillary, or humeral plexus, is formed by branches from the three last cervical and the first dorsal nerves; this plexus gives origin to several large nervous trunks; but, for my present purpose, it is only requisite to notice two,—the radial and ulnar: these nerves, being formed by the union of spinal branches, are, of course, motor and sensitive nerves, having nothing whatever to do with secretion or nutrition. I need not describe their course down the radius; suffice it to say, when they have gained the metacarpus, they take the names of internal and external metacarpal nerves; here also they lose one of their functions: they are no longer compound nerves, but simple nerves of sensation, for the power of locomotion resides wholly in the muscles which are placed above the knee; consequently the motor fibres of the radial and ulnar nerves are distributed there. When these nerves are divided, the foot loses all sensation: if pain existed before, it is now no longer felt; but the animal steps firmly on the ground, and without that tenderness which so plainly tells us all is not as it ought to be: yet, notwithstanding this loss of sensation, the functions of secretion and nutrition, being dependent upon another system of nerves, remain unaffected; the hoof grows as usual, synovia is secreted as usual, and all the offices of the foot are performed as before the division of the nerves. And does sensation never return? Yes; it does return after a period greater or less, according to the manner in which the operation is performed, whether it be a simple division or the excision of a portion: if it be merely a division of the nerves, sensation is restored in about two months;

but if a portion be excised, we cannot determine the exact time of restoration. It would not suit my present purpose to inquire whether the original tissues of the nerve are restored: it is sufficient to know that its functions are performed as well as before its division. Having thus, as slightly as may be, glanced at the operation of Neurotomy, I will consider its application to and effects upon certain diseases. Suppose an animal lame from ossified cartilages, ringbone, or any chronic affection of the foot, attended with alteration of structure; all methods have failed to relieve the part affected, and at last Neurotomy is resorted to: the sense of pain being removed, the animal no longer flinches when he puts his foot upon the ground; and probably the lameness disappears. But Neurotomy cannot work miracles: it cannot re-convert the ossified cartilage to its original structure, nor restore permanently altered parts to their pristine condition, consequently the disease still remains; but as all sensation is removed, it causes no pain, therefore no lameness is evinced; yet such a horse cannot be considered sound, because the lameness will return with sensation; and even if sensation should never return, the horse is unsound; for, independent of the original disease, there is still some unpleasantness, and perhaps unsafeness, in his action; and the foot which is void of sensation is more liable to injury than the foot possessed of sensation; for the animal may travel after a piece of glass or a nail has penetrated his hoof, without being conscious of it, until irreparable mischief is produced.

But there are other diseases in which this operation is resorted to with great benefit. Contraction, canker, tetanus originating in some wound of the foot, &c. These are diseases which can be removed, the structure and functions of the parts can be perfectly restored, and we call in the aid of Neurotomy, not exactly to subvert the effects of the disease, but as a collateral means of cure; and when that cure is effected, and sensation renewed, I cannot see why the horse should still be pronounced unsound. That in the great majority of cases where Neurotomy is performed, the animal is afterwards permanently unsound, I perfectly agree; but is it the operation which constitutes the unsoundness? No; it is the disease—the permanently altered structure which previously existed, and which Neurotomy was never intended or expected to remove: it is this which produces the unsoundness; and I certainly cannot imagine how it is that a horse upon which this operation has been performed, under certain circumstances, must ever afterwards be deemed unsound. It appears to me that the question of soundness or unsoundness, as connected with Neurotomy, depends entirely upon the disease for which the practice is adopted: if that disease is of a chronic nature, attended with

permanent or extensive alteration of structure, and Neurotomy is adopted as a last resort to palliate or subvert the effects of the disease with regard to the animal's action, I should say such a horse can never afterwards become sound, although he may go free from lameness for many a year; but, on the other hand, if the disease is of such a nature that no particular alteration of structure attends it, and Neurotomy is adopted as part of the remedial means—as an assistant in the removal of the disease—I should say that such a horse might probably become sound, and that, therefore, the operation of Neurotomy does not necessarily render an animal unsound.

I have thus superficially attempted to express the opinions of an humble student; and if those opinions be somewhat crude, and unfit to bear the test of experience, they are placed where the professional opinions of all ought to be, viz. before the public. The object of my writing is not to support any particular doctrine or theory, but to elicit truth; therefore, if any of your correspondents would remember what Persius says,

"Scire tuum nihil est nisi te scire hoc sciat alter,"

and be at the trouble to point out the fallacy of my remarks, they would confer a favour upon me.

INDIGESTIBLE SUBSTANCES IN THE COLON OF A MARE.

By Mr. Fuller, *March, Cambridgeshire.*

On the 5th of February last I was summoned to attend a cart-mare, in foal, the property of Mr. T. Ellcott, of March, from whom I understood that the mare had just returned from her day's work, and that no alteration was seen in her until she had got home. Upon examination, I found her labouring under enteritis. I immediately abstracted six quarts of blood, gave her twenty ounces of castor oil, raked her, and threw up a gallon of warm gruel as an enema; clothed her moderately, and placed her in an open shed. I remained with her some hours: she dunged several times during the evening, and at night she appeared much better. I saw her again during the night, and she seemed to be doing well: I horned down a gallon of warm gruel, and repeated the enema. The following morning the symptoms had returned as violently as ever. I again bled her copiously, and blistered the whole surface of the abdomen. Her bowels were relieved several times in the course of the day: the fæces were of a good consistence, but highly offensive. At night she appeared to mend, and continued to do so until the following

evening, when she altered suddenly for the worse, and died some time during the night. In the morning I opened the body, in the presence of Mr. Ellcott, who particularly requested me not to examine her until he came. I found the viscera of the abdomen very much inflamed, particularly the large intestines: after carefully removing them, I examined their contents, and found lodged in the cells (of the colon in particular) a quantity of indigestible matter, consisting of stones, sand, nails, glass, and several pieces of lead and wire. The man who looked after her informed me, that she had been a very ravenous eater, and that he had no doubt but she had taken the stones and sand with her water, as they exactly corresponded with them at the pond where she had been in the habit of drinking. The other matter appears to have been taken at different times with her food, as her corn had been kept in the same place with some broken cucumber frames. The near lung was very much diseased, and there were about two quarts of fluid in the near side of the chest: the heart and off lung appeared perfectly healthy.

FOREIGN VETERINARY SCHOOLS.—No. II.

THE NETHERLANDS.

For the following sketch of the Flemish school we are indebted to Mr. Dick, of Edinburgh, who has favoured us with the copy of a letter addressed to him by an intelligent friend:—

Utrecht, 25th Nov. 1830.

My dear Sir,

From the interest which you take in every thing connected with veterinary science, and the enthusiasm with which you prosecute its investigation, I feel confident that I shall confer no small favour upon you, by communicating to you an account of the veterinary establishment of this place. I have enjoyed every facility of acquiring a correct knowledge of the subject, through the kindness of the principal professor, Dr. Numan, who has not only given me every information I required, but who also directed the superintendant to conduct me through the whole institution, and thus afforded me the further means of minute and accurate investigation. You will make allowance for my ignorance of the science itself, and any small inaccuracies into which this may inadvertently betray me.

The attention of the public in this country was first particularly drawn towards the veterinary art in consequence of a *cattle-pest*, which was first imported into Holland in 1711, but which proved exceedingly destructive in its effects towards

the end of the last century. Inoculation and various other means to prevent the spread of the malady were attempted in vain: a proposal was then made to destroy all the distempered cattle as soon as the disease made its appearance, and to remunerate the proprietors from the public treasury. This, however, the depressed state of the treasury, in consequence of the war, could not permit. Another proposal was made, to levy a small tax upon cattle in general, and from the fund thus raised, to defray such expenses as those referred to, and to promote the interests of agriculture in general. This proposal received the approbation of government, and was without delay carried into effect. An agricultural society was established, under the patronage of government, with branch societies in the various provinces throughout the country; and has been since in various ways employed in promoting the objects of its institution.

From the abovementioned fund the "Royal Veterinary School of the Netherlands" was established in this place, in 1821. A very handsome and commodious building, which was previously used as a cotton manufactory, was purchased for the purpose by the society, and converted into a college. Stables and other buildings were added, to serve as hospitals; and blacksmiths' shops, for that branch of the profession.

Within the college there are very excellent class-rooms for the various professors; a dissecting room; an extensive, neat, and very choice museum, containing a great collection of skeletons and preparations, and other things of a similar kind connected with the science. There is a neat and pretty extensive collection of chemical, philosophical, and dissecting instruments. A library, containing several hundred volumes of works connected with the veterinary science, and the chief periodicals which appear on the subject in the Dutch, German, French, and English languages; beside rooms for public meetings of the directors; accommodation for fifty students, a superintendant, and house servants. Attached to these buildings is a house for the residence of the principal professor; a pretty extensive botanical garden; and several enclosed fields for the use of the animals at the institution.

Belonging to the college there are three professors, Dr. A. Numan, director and professor of the practical branches; Dr. T. G. van Lidth de Jaide, professor of anatomy, physiology, and botany; Dr. P. J. T. de Tremery, professor of natural philosophy, chemistry, pharmacy, and materia medica. There are beside two apothecaries, an operating veterinary surgeon and assistant, a blacksmith, and a person who has the superintendance of the buildings and the students.

The year is divided into two sessions, the one from the beginning of October to the beginning of March; the other from the beginning of April to the beginning of August. The classes proceed according to an established system, of which I send you a copy*. From that you will perceive that instruction is regularly given in zoology, anatomy, physiology, natural philosophy, chemistry and pharmacy, pathology and therapeutics, delivery, judicial and political veterinary surgery, horse-shoeing, and botany. The students are, moreover, instructed in drawing, and several of the modern languages. The professor in the practical part of the science and the operating surgeon visit the stables every morning, accompanied by the eldest students; and all the students have daily an opportunity of exercising themselves in practical anatomy.

The diseased or distempered animals are all placed under the care of the eldest students, who are required to keep an account of the various cases, together with their treatment, and to send in a regular report after the issue of the sickness. Such animals as require to be under the immediate care of the surgeon are received into the stables; and no other charges are made than for forage and medicines at prime cost.

There are also several stallions kept at the institution for the improvement of the breed of horses, of which the farmers may avail themselves without any expense.

The students may be divided into three classes: the first consists of such as are educated entirely at the expense of the agricultural fund, and who are chosen from the various provinces after a comparative trial of candidates. Each province has the right of sending one, two, or three students, according to its extent, and the amount of its contribution to the funds.

The second class consists of such as themselves defray the expenses of their education. These pay yearly into the funds 400 guilders; and these are the most numerous class. The third class consists of such as are sent by the war department, in order to be educated as veterinary surgeons for the cavalry: these are also chosen by comparative trial, and the expenses of their education are defrayed from the public treasury.

The students are required to provide themselves with certain articles of clothing, but all wear a particular uniform which is provided for them at the expense of the college: they all reside within the building, eat at one table, and are required to be subject to all the domestic regulations.

The shortest period of attendance at the college previous to

* Which shall be given in a future number.

receiving a diploma is four years. The annual examination continues during the four last days of July, and is conducted by the professors, in presence of a commission appointed by government. Those who pass the examination, and are found qualified to practise, are promoted to the first or second rank of veterinary surgeons, according to their capabilities. Those of the first class receive annually for the first five years after leaving college a salary from the agricultural funds of 500 guilders, and those of the second class 400 guilders. For this they are required, during the said period, to reside in such parts of the country as government may appoint, and to subject themselves to the established regulations with regard to veterinary surgeons. Those educated for the cavalry are appointed to the various regiments; or, in case of no vacancy, are kept as superintendants. Those of the first rank receive a salary of 1000 guilders, and those of the second 700 guilders.

The establishment is open twice a week for the inspection of the public, and for strangers daily. Dr. Numan, the principal professor, has published a manual of veterinary surgery in Dutch, and another work on the subject in French: he is also the editor of a veterinary periodical in the Dutch language.

After various inquiries and conversations upon the subject, I cannot say the veterinary science has hitherto made very great progress in the Netherlands; but such an institution as the one which I have thus imperfectly attempted to describe, when under the superintendance of able and scientific men, and more especially of Dr. Numan, must soon produce a very great improvement.

Believe me, my dear Sir,
Yours sincerely,
W. R.

A CASE OF SEVERE CATARRH, WITH SWELLING OF THE HEAD AND VESICLES UNDER THE TONGUE.

By Mr. J. Storry, *Pickering.*

I was called to attend a mare, five years old, with severe catarrh and enormous swelling of the head, accompanied by difficulty of breathing, and apparent danger of suffocation. I adopted the usual treatment for catarrh, and the mare got better, and the pulse fell from 84 to 48, with much less difficulty of breathing; but the swelling of the head continued. She refused all solid food, and would only take milk and oatmeal gruel, which was left with her in the stable.

The discharge of saliva now became copious but not offensive; but in a few days it was tough, viscid, and highly fœtid. With considerable difficulty I examined the mouth, when I found the base of the tongue very much enlarged by the formation of vesicles on both sides, which were of a livid colour. I used the lancet freely. Very little discharge followed, but the vesicles in a few days disappeared, and the fœtor ceased on my using a mixture of the diluted chlorides of lime and soda with Friars' balsam. The muzzle and face still, however, continued enlarged and œdematous; and I applied fomentations, and afterwards a mild blister. Several small abscesses now formed, which I opened. The discharge from them was strangely various; from some it was thin, sanious, and fœtid, as from the most ill-conditioned sore; from others there proceeded a milder and more healthy discharge. Stimulating caustic injections were applied to the worst, and proper dressings to the whole; and the bowels were kept open with small doses of calomel and aloes, to which were added Castile soap and opium. The mare is now nearly well.

A CASE OF STAGGERS.

By Mr. S. Goodworth, *of Howden.*

A brown two-years old colt, the property of a gentleman at Rawcliffe, near this town, came up to the yard of his owner apparently in health. He had not been there long before he was observed to stagger and tumble about. The gentleman's people commenced treatment by taking four quarts of blood from him, but without any relief: they, after a short time, took three quarts more. The horse then appeared worse, and I was sent for. It was on the sixteenth of May when I first saw the animal: he was laid in a straw-yard, apparently very much distressed. I got hold of the halter for the purpose of making him raise his head, which he did; but as soon as I let go the halter the head fell, and he appeared to be very much convulsed, and in the greatest agonies I ever beheld: his appearance was so much like the last struggles for life, that I said to the by-standers, "I have just got here in time to see the last of him." The whole frame was quite stiff; and so inflexible was every limb and muscle, that they resisted all attempts to move them: his eyes appeared quite drawn into the orbits, and he was covered with sweat. When he had been in this state a few minutes he began to tremble, and the whole frame became relaxed: he lay quite still for some time, but the least agitation produced the same convulsive fit, if I may be

allowed so to call it, for he resembled a human being in a fit more than any thing I ever saw: his pulse beat a hundred in a minute, and was quite audible; but when the fit was off, his pulse was only fifty. After those signs of returning life, I began to have some hope of my patient, and commenced with the following treatment:—

I examined his mouth, which was very hot; and remembering that the horse had already lost much blood, and suspecting that it was a stomach affection, I gave four drachms of Barbadoes aloes in solution, and allowed him oatmeal and water to drink, which he appeared to like, but could not swallow much before he fell into a fit. I left him in a very feeble state, and promised to see him next day.

17*th*. A.M.—Much the same; and as the medicine had not operated, I again gave three drachms of Barbadoes aloes in solution. P.M. No operation: gave clysters of salt and water, and left him no better.

18*th*. A.M.—The medicine operating very much, and the horse has voided a great quantity of small needle-worms. As he had not been observed to stale, I administered a diuretic and cordial, which was nitre half an ounce, gentian two drachms, and two ounces of tinct. opii., and left him languid and feeble.

19*th*. A.M.—Much better: he was standing, and had eaten a quantity of green food, but still appeared very weak, and seemed to reel and totter. Knowing that I should not be able to see him for a day or two, I left directions with the owner how he was to be treated; and if worse, to let me know.

22*d*. A.M.—I found him a great deal better; but thought as he had parted with so many worms, it was better to give him a little more laxative medicine, and therefore ordered Barbadoes aloes five drachms in solution.

23*d*. A.M.—Medicine operates very well, and he appears much relieved: pulse about the regular standard. Not seeing any necessity for my daily attendance, as the distance from my home was so great, and my professional engagements requiring my attendance elsewhere, I told the owner he would do without my seeing him any more, and I left him doing well, and likely to do so. About eight or ten days after, being sent for to the same village, I called to see my old patient, and found him quite playful.

ON THE TREATMENT OF SOME OF THE DISEASES OF CATTLE.

By Mr. HALES, *of Oswestry.*

RED WATER is rather prevalent in the spring and summer, and more particularly upon moory or marshy land; and cattle brought from sound land and pastured in the marshes are particularly subject to red water, whilst those reared in the marshes are by no means so susceptible of the disease. There are two species of red water, the one very acute, in which great quantities of bloody urine are passed, accompanied by fever and strong disposition to costiveness: in these cases, it is not unusual for the beast to die in two or three days, and sometimes sooner, as the cow doctors say, from all the blood running out of it. The other kind is not attended with constitutional symptoms: the beast makes bad water, but feeds as usual, and appears in other respects well. This form of the disease will generally wear itself out, even without any remedy; but it does, however, occasionally, after continuing some time, take on the acute character, and the animal will die, if not properly attended to. The cow-leeches here seem to have no opinion as to what state the kidnies are in when red water exists; but from what observations I have been able to make, and the few post-mortem examinations that have come in my way, I am of opinion that the disease consists in a subacute inflammation of the kidnies, together with such disorder of the digestive apparatus as tends to the production of obstinate costiveness; and I believe that when a beast dies from this complaint, it is more in consequence of the obstructed state of the third stomach and the bowels, than from the affection of the kidnies or the water. So obstinate a symptom is the costiveness, that it is considered, if you can keep the beast from binding, there is little danger. The common treatment here is, never to bleed, but give salts as a purgative; and generally there is a recipe for turning the water, consisting of a compound of astringents and diuretics. The practice, however, that I adopt when consulted about these cases, is, to direct the beast to be bled, and that freely, if in good condition, and give salts with aloes to operate upon the bowels, and repeat the purgative, so as to keep them freely open, if possible. It is astonishing the quantity of purging medicine cattle will take in some cases of red water before their bowels get well opened. I have now before me notes of a case in which five oz. of Barbadoes aloes, a pound and a half of Epsom salts, a drachm and a half of croton, and two oz. of gamboge were given to a cow with red water, in four days, before the bowels could be got to act: we were,

at last, successful, and she recovered. If the case is severe, and does not yield to the bleeding and physic, I direct a mustard poultice to be put over the loins; the beast to be fed lightly, and kept quiet. The above plan has been very generally successful, and several people, who when I first advised them to adopt it thought it extraordinary treatment, particularly as to the bleeding, are now quite satisfied of its advantages.

Blood, or as we generally term it, *striking*, sometimes visits us: seven or eight years ago it was very prevalent, and many farmers suffered great losses in consequence. The first attack was by swelling of the throat; and the disease proceeded rapidly on to destroy the animal, generally in despite of any treatment. The common opinion is, that this disease is of a putrid nature; but I conceive there is little doubt of its being highly inflammatory at its first attack; and even those who contend for putridity agree, that the only chance of saving the beast is by immediate and copious bleeding, with purgatives, &c. Yearlings are considered more liable to strike (as the phrase is) than cattle at any other age.

Hoose exists a good deal amongst calves; and the cattle-doctors say it depends upon a species of worm, something like fly-blows, getting into the nose and throat; and they are in the habit of pouring turpentine and train oil down the nostrils, to destroy these worms, giving at the same time tar and garlic. I am inclined to consider it an inflammatory affection of the throat and bronchiæ, and have succeeded generally in those cases that have come under my care by bleeding and aperients. It is by no means a fatal disease, if treated in time; and mostly prevails in the autumn and beginning of winter.

Diarrhœa is pretty common amongst cattle feeding upon turnips. In this state it is not very difficult to cure; for if the beast is moved to a sheltered situation, or kept in and fed upon dry food, giving it also a compound of prepared chalk with opium, it will most commonly soon get well; but when the disorder exists long, and assumes that dysenteric form which is termed shooting, it is very difficult to treat. The animal loses its flesh, becomes exceedingly thin, and ultimately dies, in despite of any treatment. In this stage, the cow-leeches have each their favourite specific, the only good of which, I believe, consists in the money they can obtain for it: these recipes are composed of a farrago of incongruous substances, as burnt cork, alum, rose-leaves, verjuice, bole, &c. &c.

Dropping after calving happens to cows that are very fresh or fat, and more particularly to those that calve far on in the season, in hot weather; but cows that are too fat sometimes drop after

calving in the winter; and it is observed, that the cases which occur in the winter will occasionally recover, whilst those affected in hot weather too generally die. This disease seems to be a species of puerperal fever, attended with some peculiar state of the nerves of the loins, in consequence of which the power of the lumbar muscles is weakened or lost. The treatment is, copious bleeding, purgatives, and stimulants, as mustard, to the loins.

A CASE OF ŒDEMATOUS SWELLING.

By Mr. T. Brown, *V. S., Hinckley.*

June 15*th.*—A black cart-mare, aged, having a foal at her foot, was gored by one of the cows in the pasture with her (as supposed by the owner) in the umbilical region, near to the udder. The skin was broken, and there was considerable swelling. At the request of the owner I bled her to ℔vii; and gave aloes ʒvi, ginger ʒij; with cooling embrocation to the part.

16*th.*—Much worse, extending from the udder to nearly between the fore legs, and evidently œdematous, from the indentation remaining in the part after being pressed upon.

17*th.*—Swelling increased: insert rowel at the termination of the enlargement: gum, nitre, turpentine, and resin, each ʒiij, in a ball, and dress rowel with mild blistering ointment.

18*th.*—Rowel discharging well, but no apparent amendment.

19*th.*—Much worse. Considerable enlargement in the chest, in front of the pectoral muscles, as large as a gallon measure, and nearly of the shape.

20*th.*—No better: dress rowel, and repeat the ball.

21*st.*—Swelling abating a little.

22*d.*—Puncture the enlargement in several places with a lancet; dress rowel.

23*d.*—Ball repeated; dress rowel.

24*th.*—Swellings reduced a little more; ditto.

25*th.*—Still improving; ditto.

26*th.*—Ball repeated; ditto.

27*th.*—Enlargement nearly subsided, excepting round the wound, which required little or no treatment.

29*th.*—The wound healed, and the mare was sent to plough, and continues well.

A CASE OF EXTENSIVE ŒDEMATOUS SWELLING IN A MARE.

[*Communicated by Mr.* Cowie, *being an Extract from a Letter from his Brother, at Hackerton.*]

I beg to relate to you an extraordinary case of swelling in the belly of a mare belonging to Mr. Barclay, an extensive Angus-shire farmer.

The mare was in foal at the time the swelling commenced, previous to which she had been worked at common farm work, without receiving, as far as is known, any injury. The swelling was first seen about fourteen days before she foaled, which continued increasing during that period over all the belly, until it arrived at such an enormous size as nearly to prevent her walking. The foal was very large, but died at two days old, as was supposed from the milk of the diseased mother.

Mr. Barclay's farrier knew nothing of, and would do nothing to, the disease, until a congregation and consultation of his brother "craftsmen" was appointed, which accordingly took place; and after a series of conflicting opinions had been expressed, they came to the conclusion "that the swelling was either a coming down of the intestines or an extravasation of the milk, but whether among the muscles or in the skin they did not know."

A cure was next thought about. A bandage was applied tightly round the belly, and physic given; but neither had any good effect. A rowel was then put in about the middle of the belly, from which a copious discharge proceeded, and reduced the swelling about two-thirds, principally anteriorly to the rowel. The swelling still remaining was punctured, and a good deal of bloody-like water came from the wound, which made the farriers believe that the disease proceeded at first from the rupture of a bloodvessel; and they are still of the same opinion.

The effect of the rowel having enabled the mare to walk pretty freely, she was put to gentle work, and has continued ever since, being now nearly six weeks, during which time the swelling has rather increased than decreased, and it is at this present time, I am sure, the size of a man's body, being altogether on the posterior part of the belly.

OBSERVATIONS ON THE

APPLICATION OF CHEMISTRY TO PHYSIOLOGY, PATHOLOGY, AND PRACTICE.

By Wm. Prout, M.D., F.R.S.

As delivered by him, in the Gulstonian Lectures, at the College of Physicians.

[By permission of Dr. Prout and the Editor of the London Medical Gazette.]

We eagerly avail ourselves of the permission we have obtained to reprint from the *Medical Gazette* the excellent lectures of Dr. Prout on the application of Chemistry to Physiology and Pathology. To us poor neglected veterinarians it is new and untrodden ground. It will be our pleasing task hereafter to shew the peculiar bearing of these lectures on veterinary practice; and in the mean time our readers will draw their own inferences, neither few nor unimportant—Edit.

LECTURE I.

The subject on which I have the honour of addressing you is one of great interest, and daily becoming of more and more importance to the physiologist and pathologist; namely, the consideration of how far chemistry can be applied to physiology and pathology, and of the modes by which the inexhaustible powers of this science can be best directed, so as to ensure its utmost advantages.

In the present state of physiology and pathology, if we scrutinize closely our notions and reasonings on almost any subject, we shall find them, for the most part, to be either purely mechanical or metaphysical. The human mind, in its pursuit after truth, quits with reluctance the dominions of quantity, and hence is too apt to push its laws far beyond their legitimate boundaries. A few of the phenomena presented by living organized bodies are obviously of a mechanical nature; but do we reason justly, in the great majority of instances, when we attempt to explain the most complicated phenomena by the assumption of a little more or less blood, or other fluid; by the presence of enlarged or contracted vessels or apertures; by diminished, excessive, or deranged vascular power or action, and a variety of similar circumstances? Or are our notions of the operations of remedies expressed by such terms as evacuants, deobstruents, tonics, &c. all having reference to mere quantity, either in mass or power, a whit more satisfactory? On the other hand, when we quit ma-

terial grounds, and launch into the wide ocean of metaphysics, all is fancy and hypothesis; and nervous power, nervous irritability, morbid and healthy, nervous sympathy, and a host of other terms of similar character, are, for the most part, mere words to which no two individuals attach exactly the same meaning, and which often have no meaning at all, but are nothing more nor less than a technical gloss to cover our ignorance.

Now between these two extremes—the purely mechanical on the one hand, and the purely metaphysical on the other—there lies an immense chasm, in which is included by far the greater proportion of those important changes which take place in organized beings. The nature of these changes, and of the laws by which they are conducted, have probably no exact prototype among those of inanimate bodies; but they are obviously most nearly allied to the changes and laws of common chemistry: accordingly, chemistry, from its earliest dawn as a science, has been eagerly pressed into the service of the physiologist; and chemists of the first talent have laboured most assiduously, and exerted all their powers, to further his views, but hitherto without the expected results; and it must be fairly confessed, that physiology and pathology have derived much less advantage from this branch of knowledge than might have been expected. The reason of this failure, no doubt, is to be ascribed, in part, to the difficulty of the subject; but it is no less true, that it has been rendered the more signal by the imperfect manner in which the science has been applied. While chemistry was little more than a branch of natural philosophy, and confined to those who had not studied physiology, what could be expected from it? The utmost that a mere chemist could be supposed to effect would be, to examine an organized body as he would a mineral one, and tell you it was soluble is this, and precipitated by that, and so on; all very important information in its way, but unfortunately of a description totally useless to the physiologist, and calculated only to disgust him. Another fatal rock on which those have split who have attempted to apply chemistry to physiology and pathology has been, the hasty assumption, that what they found by experiment to be wanting or otherwise deranged in the animal economy was the cause of particular diseases, and that these diseases were to be remedied by supplying or adjusting, artificially, the principle in error. Now, in general, nothing can be more absurd than such reasoning as this; and the physiologist or pathologist who adopts facts, and reasons upon them in this manner, as a mere chemist would do, will be almost certainly led astray; and if he be given to castle-building, and construct his airy fabric on such a foundation, he will sooner or later have the mortification of

finding it tumble about his ears; and, perhaps, his own reputation buried in the ruins.

Before he can hope to derive much real benefit from chemistry, the physiologist must turn chemist himself. In conjunction with the phenomena presented by living organized bodies, with which he ought to be thoroughly acquainted, he must carefully study their common chemical properties, their ultimate composition, the laws of their formation and change, and a multitude of other matters which the mere chemist is apt to overlook, or knows not how to appreciate even if he observes them. With information thus acquired, and an ordinarily sound judgment, he will soon discover, on the one hand, what he can *not* do, and on the other, what is really within his power. He will soon discover, for example, that nature will not permit him to officiate as her journeyman, even in the most trifling degree; or, in other words, that he is as little able to remedy or supply, in a direct manner, what is amiss or wanting in organic action, as he is to remedy or supply an injured nerve or muscle; and that the only way in which, for the most part, he can hope to influence her operations, is through the indirect agency of those circumstances which naturally possess the power of influencing them, and the management and control of which are, to a certain extent, within his power. Another point which he will do well to shun is, idle speculation on the nature of the living or vital principle of organized bodies. The true and legitimate object of inquiry for the physiologist ought to be, not what this principle *is*, but what it *does;* just as the laws and effects of gravitation are legitimate objects of inquiry, though we know nothing, and probably never shall know any thing, of the principle of gravitation itself. Let us, therefore, in conformity with this view, inquire briefly into the phenomena presented by organized beings.

1. In the first place, with respect to the material elements entering into the composition of organized beings, we may observe, that these exist in the world in great abundance in the inorganized state, in which state they possess no peculiarities, but are subject to all the agencies and laws which influence other matters. Organized bodies also are no less capable of being influenced by the same agencies and laws; a fact which seems to shew, that the organic principle, in adopting material elements, either cannot, or at least does not, adopt them in the abstract, but adopts the whole together—the material invested with all its natural powers. But as this is a most important point, which I am anxious to establish, in opposition to a notion I believe very prevalent among physiologists, that the organic principle has the power of detaching matter from its ordinary and natural properties, and in-

vesting it with new ones, and thus of radically changing or subverting the laws of common chemical action: I shall endeavour, before we proceed, to illustrate it a little further.

Let us take a mass of sugar, as a familiar example of a substance formed by an organic principle, and which, probably, will never be formed by any other agency. Sugar has been ascertained, and is generally admitted, to be composed of three elements—hydrogen, carbon, and oxygen, combined together in certain proportions. Now what power, I ask, is it, which, at this moment, keeps the particles of the three elements composing this sugar together in its present state? Will any one contend that it is the organic principle of the plant in which it was formed, perhaps, many years ago? Would not this supposition be as unnecessary as absurd? for do we not know that the elementary particles of all bodies, or at least of those which form sugar, possess a natural and inherent affinity for one another—the hydrogen, for example, with the carbon, or with oxygen, or both? And are not these natural affinities among its component particles quite sufficient to account for, at least, its present existence? If this supposition be admitted, must we not be likewise compelled to admit, that this sugar has *always*, from the moment of its first formation in the cane, existed, in virtue of the same natural affinity among its particles? And, to push the argument still further, must we not suppose, in this case, that, even at the moment of its formation, the organic principle of the plant, if it exerted any, must have exerted powers *absolutely identical* with those which now keep its particles together.

We have reduced the argument, then, to this state: in the immediate formation of sugar, either the organic principle did *not* impart any new power whatever to the particles of which it is composed, and causing them to combine together, or it imparted to them a power absolutely identical with those they already possessed, and which naturally belonged to them. Now the latter alternative is directly at variance with that principle of logic which forbids the assumption of two causes for the production of an effect, when one cause already exists which has been proved, or is known, to be sufficient for that purpose. The conclusion, then, from the whole argument, is, that the organic principle of the plant does not at this moment, nor has not at any time, even at the moment of its formation, acted as the cause which keeps the elements of sugar in their present state of union; but that they first combined, and still remain in union, in virtue of the natural and inherent affinities existing among the particles of which it is composed; and the same argument, with some modifications, may be extended to all organic compounds.

2. But organic compounds in general *do* differ very much, in their sensible and other properties, from those of the inorganic kingdom; we have, therefore, to inquire briefly, in the second place, into the nature and reason of these differences. Organized bodies in general do not crystallize; instead, therefore, of being bounded by straight lines and angles, they are usually more or less rounded, and their intimate structure is amorphus. Indeed it is a remarkable fact, that no crystallizable body (even water and the saline matters of the blood are doubtful) seems capable of constituting a portion of a living organized being; such products, when they do occur, being either the result of excretion or of disease, or of some artificial process. Thus sugar, above-mentioned, in its crystallized state, is the result of an elaborate artificial process, the object of which is the separation of a number of other matters naturally existing in combination with it in the juice of the cane, and which, as long as they are present, effectually deprive it of the power of crystallization; and, indeed, it has been known, from time immemorial, that all organized bodies, when submitted to combustion, leave minute portions of earthy and saline bodies constituting their ashes. These bodies have been usually viewed as foreign matters accidentally present; but I never could bring myself to subscribe to this opinion: on the contrary, they have always appeared to me to constitute the grand difference between inorganized and organized bodies, and to perform the most important functions; or, in other words, that organization cannot exist without them. The following are a few of my reasons for this opinion:—

Every one must have remarked how much the external characters and properties of all substances are liable to be modified by different modes of aggregation, and a slight admixture of foreign matters: this holds good both in the inorganized and organized productions. Thus, what can be more striking than the infinite variety of forms or conditions which common carbonate of lime assumes from these causes? Iceland spar, pure white marble, and common chalk, owe their differences solely to the modes in which their particles are aggregated; but these differences are trifling when compared with the infinite variety produced in the same substance by a slight admixture of other matters. Another familiar instance in which the *properties* rather than the external characters of a body are changed by a minute admixture of foreign matter, is *steel;* which important substance, as every body knows, is essentially composed of iron, combined or mixed with an insignificant proportion of carbon. The modifications, however, produced in the inorganic kingdom are by no means so striking and important as those produced by similar

causes in the organic kingdom. In the inorganic kingdom, also, the primary compound in general, as in the instance of carbonate of lime, is fixed and definite in its nature, and thus easily separated from foreign bodies, and made to crystallize as we choose. But in the organic kingdom the case is very different: here the substances, though undoubtedly primarily composed according to precise chemical laws, are naturally so unstable in their condition, and so easily decomposed, that from this cause alone they can, in very few instances, be separated from the contaminating matters, and be obtained in a perfectly pure state.

But it is well known, that the foreign bodies met with in organic products are more intimately mixed, and adhere with greater obstinacy to the primary elements, than similar substances in inorganized bodies. They are also, for the most part, so uniform and constant in their character in the same substance, that, whatever office they may be supposed to perform, it is difficult not to believe that it is a most important one, and quite as essential to the existence of the body in its organized condition as the elements of which it is chiefly composed. How these bodies operate is not so easy to explain. That they do not enter into the composition of organized bodies in definite proportions, according to any known chemical laws at least, is evident; and the only notion that, for a long time, I could form to myself on the subject was, that they perform an office which may be termed *interstitial*—that is to say, that they operate by being interposed, as it were, between the essential elementary atoms of organized substances, and thus prevent them from assuming the crystallized form, in which state they would be totally unfit for the purposes of the economy of living organized beings.

This mechanical explanation of the operation of minute foreign bodies, though probably correct to a certain extent, or as far as it goes, is obviously, however, inadequate to explain *all* the phenomena. Whoever has carefully studied the effects of minute quantities of matter upon common chemical action, and infinitely more upon organic action, must be aware that they often appear to exert energies totally inexplicable upon any known principles. The subject, however, has by no means received the attention it deserves; and, indeed, besides myself, I do not know any one that has attended to it at all—at least in the point of view in which we are considering it here. There is, however, one very important series of experiments made by Mr. Herschel, and published in the Philosophical Transactions for 1824, which struck me at the time as remotely bearing on the subject; and though, in the present state of our knowledge, these experiments can be hardly so applied as to throw much immediate light on the sub-

ject, they seem to me to open up a new and important field of inquiry, and to promise to lead hereafter to the most unexpected results.

For the particulars of Mr. H.'s experiments I must refer to his paper, and shall only observe, that he has shewn that an enormous power, not less than 50,000 times that of gravity, may be instantly generated by the simple agencies of common matters submitted to galvanic influence; as, for example, mercury alloyed with a millionth part of its weight of sodium, &c. That the powers thus capable of being developed are, in some way or other, connected with many of the phenomena and changes presented by organized beings, to an extent far beyond that contemplated by Mr. Herschel, I have no doubt. We before attempted to shew that, in adopting and employing material bodies, the organic principle adopts and employs also those energies which are naturally associated with them—as the galvanic energy, &c. Now it must follow, I think inevitably, that if the galvanic energy be made to operate upon bodies constituted, as all organized bodies are, of certain principles alloyed or mixed with minute quantities of foreign matters, that powerful actions of some sort or other must take place; for no one, I presume, will for a moment contend that these effects are confined to mercury. It deserves to be mentioned also, as a curious fact corroborating this supposition, that many of those minute foreign substances which Mr. H. found to exert most energy in his experiments, are precisely those most usually occurring in organized bodies, such as sulphur, phosphorus, magnesium, calcium, iron, &c.; and that the serum of the blood itself is a weak alkaline solution of soda, the very same as that most usually employed by Mr. H. in his experiments. The analogy might be even carried further; but I shall dismiss the subject for the present with a brief enumeration of some of the more important phenomena which seem to derive much elucidation from the views here brought forward. Among these may be mentioned, in the first place, the subtle matters of contagion and miasmata: these, whatever they may consist of, apparently exist in very minute quantity, and evidently operate by deranging or subverting organic action. To these may be added many medicinal substances capable of producing the most extraordinary effects in the smallest doses; the still more refined and recondite matters of light and heat, and a variety of others; all of which produce their effects by the agency of infinitely minute quantities, and that probably by attaching themselves to the principles composing organic bodies, and thus, by suspending natural actions or introducing new ones, influence or destroy life.

After this brief sketch of the nature of organized bodies, as

compared with those from the inorganic kingdom, we may, perhaps, be able to form some notion of the general principles upon which the organic agent operates, and the nature of the influence it exerts in the formation of organic products.

Let us take the same body, sugar, as the subject of illustration. Sugar, as before observed, is made up of three elements, two of which, hydrogen and oxygen, in the simplest state in which we are acquainted with them, exist as gases; the other, carbon, as a solid. Now, in operating on these elements in mass, as we are obliged to do in our experiments, I need not say that we have never been able to cause them to combine so as to form sugar; but if, instead of operating upon the elements in mass, we were enabled to contrive an apparatus so constructed as to exclude all foreign agencies, and to bring the particles of each of the elements together in succession, there can be no doubt, from the natural affinity existing among these particles, that they would combine, and that the result would be the identical substance, sugar, the same as it is formed by nature. Now this is exactly the principle upon which all organic processes are conducted. Nowhere do we see the organic agent act upon elementary principles in mass, as we are obliged to do in our experiments, but by the medium of a complicated and minute apparatus, which enables it to operate, as it were, on the ultimate particles of bodies, and by these means to exclude some and to bring others into contact, according to the design in view. With respect to the nature of the organic agent, this view of the subject leads us to the conclusion, that in different instances it is endowed with different degrees of power, but that in all cases it must be considered as an ultimate principle, endowed by the Creator with a faculty little short of intelligence, by means of which it is enabled to construct such a mechanism from natural elements, and by the aid of natural agencies, as to render it capable of taking further advantage of their properties, and of making them subservient to its use. Nor does this view of the subject lead to materialism, or otherwise derogate from the wisdom and power of the Deity, but, on the contrary, is calculated to exalt both in our estimation; for is it not more consonant to our notions of infinite wisdom and power to suppose that the Deity created agents and materials originally endowed with all the energies and properties we have assigned to them, than to suppose that he originally created them imperfect, and is every moment obliged, as it were, to perform miracles by subverting or extending their natural actions and properties? There is yet another advantage resulting from the views here attempted to be established, which I cannot refrain from mentioning before we quit this part of the subject; namely, that by re-

presenting organic action as an adaptation and extension of those more obvious changes constantly going on around us, it not only renders them legitimate objects of inquiry, but holds out the rational hope that, by industry, and cautiously proceeding step by step from the known to the unknown, we may hereafter arrive at the solution of many of Nature's mysteries.

We come now, in the last place, to consider very briefly the modes by which chemistry can be more immediately applied to the purposes of physiology and pathology.

Chemistry, like most other branches of knowledge, may be considered in a twofold point of view—as a *science*, and as an *art*. The *science* of chemistry may be supposed to comprehend the knowledge of the primary laws which influence and regulate the combination of bodies, without reference to their common chemical properties; the *art* of chemistry comprehends the practical knowledge of what is termed the chemical properties of bodies.

The *science* or philosophy of chemistry, I am sorry to say, is very little understood; perhaps no science less so, considering the attention that has been paid to the subject. The atomic theory of Dalton, by connecting chemistry with quantity, was undoubtedly the greatest step that has been made in modern times; but by stopping where it did I am not sure whether, upon the whole, the science of chemistry has not been rather retarded by it than advanced: for to suit the imaginary standards of this bed of Procrustes, real results, I fear, have been too often extended or compressed beyond all legitimate bounds, and thus truth sacrificed to error. My notion of the atomic theory is, and always has been, that it does not present a just view of the laws which regulate the union of natural bodies, and, consequently, that it is inapplicable both to organic and inorganic chemistry. The light in which I have been always accustomed to consider it has been very analogous to that in which, I believe, most botanists now consider the Linnæan system; namely, as a conventional artifice, exceedingly convenient for many purposes, but which does not represent nature. On the continent, the modification of Dalton's views, proposed by Berzelius, is generally adopted; but this, I fear, is still more imperfect, than our own. In spite of this, however, and solely from their industry and practical skill, the Berzelian or continental school of chemists has got the start of us in many respects, and by mere dint of experiment has succeeded in establishing the curious and important doctrines of *isomorphism* and *isomerism*—doctrines totally inexplicable on the principles of Dalton and Berzelius, but which seem to me to flow necessarily, in conjunction with some others, from the principles

which I have long considered as regulating the union of bodies in nature.

This is not the place nor the occasion, however, to enter on the subject of chemical philosophy, even if I were prepared to do it in detail, which I am not; but in order that what follows may be the better understood, it may not be amiss to state very briefly some of the views to which I was led now many years ago, and which are quite at variance with the artificial system at present received, and seem to indicate rather the existence of a more natural system.

1. In the first place, bodies appear to be associated together in natural groups or families, having certain radical laws in common. Thus the three great natural classes or groups, which appear to essentially constitute the groundwork of all organized beings, may be denominated the *saccharine*, the *oleaginous*, and the *albuminous*. An account of the analyses of the principal objects of the first of these great classes, the *saccharine*, has been already published in the Philosophical Transactions for 1827; the other two have not yet been published. The radical law pervading the whole class of saccharine bodies is, that they are essentially composed of carbon and water in different proportions. The radical law pervading the oily bodies, as far as I have yet examined them, is, that they are essentially composed of olefiant gas and water, or have relation to this composition. The radical law of the albuminous class I cannot yet venture to mention. When the analyses of all these three great classes are completed and published, it is my intention to point out in detail the curious and important results to which they lead; but not till then. In the meantime it is my wish that the results which have already been, and which remain to be published, shall be thoroughly investigated by others, in order that their errors, if they contain any, may be pointed out, that I may not have the mortification of building my superstructure upon a sandy foundation.

2. The numbers conventionally employed by chemists, and termed atomic weights or chemical equivalents, I am disposed to view in a very different light from that in which they are usually viewed at present. Supposing them to be correct, they no doubt represent, in general, the quantities in which bodies *most usually combine*, but by no means always. Indeed, they appear to me to be often nothing more than one term of a natural series peculiar to each body, and determining its combination. Thus 9, the number assumed to represent the combining weight of water, is to be considered only as one term of the series 3 : 6 : 9 : 12 : 15 : &c. in all which proportions (and, perhaps, in still lower submulti-

ples of them) this fluid enters into combination, perhaps quite as often as in the proportion 9, especially in the organic kingdom. Chemists have already a glimpse of this important fact when they speak of bodies uniting to others in the proportions of two, three, or more atoms, which, in fact, are nothing more nor less than different terms of a natural series, such as that above alluded to.

This view throws much light on the composition of bodies in general, and at the same time obviates many of those absurdities and false conclusions to which chemists are too often led by adhering to a single term. Thus, in a natural group or family, as the saccharine group for example, by adhering to a single number, as 9, for water, we should be led to fractions of atoms without end; but by considering the carbon as associated with different proportions of water, in terms of the above series (as experiment indicates to be the case), all these absurdities are avoided, and at the same time the existence of a beautiful law is indicated; and, in connexion with this point, it may be further observed, that, in general, the more simple the relations between the elementary weights, the more fixed and definite the character of the resulting product, particularly if the absolute weights of the elements have likewise a simple relation.

There is reason to believe that bodies, as they descend in the quantitative series, gradually lose their power of contributing to crystalline form, and acquire a merorganizing faculty*: this appears, at least, to be strikingly the case with water (one of the most important and frequent of all the merorganizing principles), which, even within limits capable of being determined by experiment, often modifies crystallization very remarkably.

From these observations, which might be much extended, it will appear that, before much can be certainly known respecting the real nature of organized beings, the subject of chemical philosophy must be better understood than it is at present, and the ultimate composition of bodies be much more accurately determined. In conjunction, too, with the ultimate composition of bodies, the nature of the merorganizing bodies must be carefully studied. This is an entire new field of inquiry, and one of the utmost importance and curiosity, and will, I have no doubt, hereafter, throw no ordinary light on many of nature's operations. We shall then, for example, know why the red particles of the blood are merorganized by iron; why sulphur predominates in birds, phosphorus in fishes, lime in the secretions of the alimentary canal; how magnesia or magnesium is connected with nerv-

* Μέρος, *partim:* see the paper above alluded to, Phil. Trans. 1827, where this term is provisionally adopted and explained.

ous action, at least that of the ganglionic nerves; and an infinite variety of similar matters, the existence even, much less the *modus operandi*, of which is entirely unknown to us.

From the little progess that has been made in the philosophy of chemistry, and its great difficulty, we must be content, I fear, for many years yet to come, with a very limited knowledge of the subject. In the meantime, let us inquire very briefly how far the *art* of chemistry, or the consideration of the chemical properties of bodies, can be best applied to the purposes of physiology and pathology.

I have already said that the physiologist, in order to obtain the utmost advantages that chemistry is capable of contributing, must turn chemist himself, and carry on his researches in connexion with the phenomena of life, of which he must never lose sight for a moment. In the first place, and whenever it can be done, the substance to be examined should be detached from all others, and obtained in a crystalline form. On this part of the inquiry much valuable practical knowledge is to be obtained by a careful study of the essays of preceding celebrated chemists, and particularly of the French chemists, who have pursued this branch of inquiry farther than it has been carried in this country. When a substance cannot be obtained in a crystalline form, which is the case with by far the greater proportion of organic matters, we are obliged to quit altogether the solid foundation of quantity, and to take our station among the uncertainties of mere quality, or sensible properties. Now every one must have remarked, at the outset of his chemical career, that the phenomena presented even by well-defined bodies, when submitted to the action of tests and re-agents, were often very different from what he had been led to expect; and that, from some trifling circumstance or other, he was constantly liable to fall into error; and, in short, in many cases, that it was not till after long and close attention that he was enabled completely to see his way, and separate the essential from the accidental phenomena. Even here, then, much depends upon the operator; and according as his skill and experience are greater or less, so will his statements be more or less entitled to confidence. But if this be the case with fixed and well-defined substances, how much more strikingly so is it with organized bodies, the phenomena presented by which, whether naturally, or as influenced by tests and re-agents, are so delicate and evanescent, so varied and infinite in number, that language is scarcely capable of conveying any adequate idea of them: hence the long and tedious details of precipitations, changes, &c. said to be produced by different re-agents on organic products, are, for the most part, entirely useless both to the chemist and physiolo-

gist, and by multiplying uncertainties, serve only to contribute to error.

Imperfect, however, as this department of chemistry is, and always must be, it is yet capable, when judiciously applied, of contributing much valuable information to physiology and pathology. Great care and experience, however, are necessary on the part of the operator, which alone will give that tact and power of discrimination calculated to enable him to disentangle the intricacies presented to him, and to seize the clue that will lead him to truth. By its aid, for example, the physiologist can often identify the most delicate and refined organic products in a way that cannot be done by any other means, and thus be enabled to detect minute variations from the healthy standard, often of the utmost importance in a physiological and pathological point of view. Another field of inquiry in which this department of chemistry can be usefully applied is, the study of the effects produced by medicinal agents. Many of these, as is well known, often change or modify organic products, and particularly secretions, in a remarkable manner; and when the nature of these changes is understood, they often lead to the most valuable practical inferences with respect to the periods and modes of administering particular remedies. In short, the physiologist, in a great many instances, by the aid of chemistry, can so associate the evanescent and fleeting phenomena of life and of disease with the more tangible and intelligible phenomena of matter, as not only to be enabled to form a more just notion of their nature himself, but to convey it to others; and thus, instead of being obliged to permit the greater part of his knowledge to die with him, to hand it down, in an intelligible form, for the benefit of posterity.

Thus, then (to recapitulate briefly what has been said), we may consider chemistry to hold a sort of intermediate rank between anatomy on the one hand, and metaphysics or psychology on the other; and by gradually coalescing with both, to connect the whole, as it were, into one great system. Of these extensive branches of knowledge, anatomy, from its obvious and mechanical nature, no less than from the great attention that has been bestowed upon it, is by far the best understood, and scarcely a nerve or fibre, perhaps, remains that has not been again and again demonstrated, so that comparatively little remains to be done in it. On the other hand, if we know little of the nature of living action or psychology, it has not been for want of inclination and attempts to investigate it, but simply from the nature of the subject, which, for the most part, is beyond our comprehension. While, if we turn to the vast and intermediate field where, by in-

dustry and perseverance, almost every thing is within our power, we find comparatively little done, and very few working. How is this? What is the reason that so important and interesting a branch of knowledge should be so unaccountably neglected, and that our knowledge, in fact, respecting it is little farther advanced than it was twenty years ago? How is it that a physiologist will sit down and rack his brains and invention to push mere mechanical principles to the most improper and absurd lengths; or choose to wander and lose himself in a labyrinth of metaphysical subtleties and errors, rather than attempt the investigation of what, by a little well-directed industry, is completely within his power? The circumstance, I confess, has always appeared to me most unaccountable, though I trust the opprobrium is about to be removed, and that this most important and interesting point of knowledge will soon obtain all the attention it deserves. The subject falls properly and exclusively within the province of the physician, and to the young and industrious aspirant it offers an immense field, where the prizes are many and great, and the competitors few. Mechanical principles, as applicable to physiology, are limited at best, and they have already been pushed as far as they safely can be; but here every thing is new, at least at present, and apparently unlimited; for chemistry, perhaps more than any other science, depends for its advancement upon the gradual development of human knowledge.

That the physician of another age will be as familiar with the operations of the animal economy as he is at present with its anatomy, I have not the least doubt. The minute and ultimate anatomy is unknown to us—the minute and ultimate chemistry will always probably remain so; but all the great and obvious changes, like the great and obvious parts of the living machine, are within our power, and will be known: and, to push the comparison still further, I will venture to predict, that what the knowledge of anatomy at present is to the surgeon, in conducting his operations, so will chemistry be to the physician, in directing him, gerally, what to do and what to shun; and, in short, in enabling him to wield his remedies with a certainty and precision, of which, in the present state of his knowledge, he has not the most distant conception.

THE VETERINARIAN, AUGUST 1, 1831.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

WE were in company, a little while ago, when the present state of the veterinary profession became the subject of conversation. A gentleman observed, that there was a fact for which he could not account, and that was not a little discreditable to us, and deserved our very serious consideration—that no veterinary surgeon had been able to obtain a living at Newmarket. We once got into sad disgrace for publicly stating the same fact; but it is an undeniable one, and we are sorry for it.

There are always a great number of valuable horses at Newmarket; and at certain times of the year all the pride of the English racing breed is collected there. The horses are not only valuable in themselves, but their owners have frequently immense sums staked upon them. One would think it, of all places in the world, the most favourable for him to settle who knew how to preserve the horse in full health, and most speedily and effectually to cure his diseases; yet seven or eight young men have gone, one after the other, from the Veterinary College to Newmarket, and have left it in a year or two in despair and disgust. An *old farrier* residing there does considerable business; and Mr. Bowles, of Cambridge, a very excellent practitioner, is frequently consulted; but a veterinary surgeon cannot live at Newmarket.

This is not a little discreditable to us; and it does deserve our serious consideration.

There are, however, some peculiarities about Newmarket, whatever might be our first impression, that are really unfavourable to the success of the veterinary practitioner. In the first place, it is the metropolis of the groom's empire; it is where he has for many a year ruled with absolute sway, and where he would be most of all jealous of a rival, and a rival whose superiority he feels and dreads. In many stables the master is comparatively powerless: in the training-stable he is a mere cipher. The tyranny of the groom, founded, like tyranny everywhere, on

ignorance and indolence, is despotic. Some masters submit to it reluctantly, but all do submit to it; and the management of the race-horse, in health and in sickness too, is the peculiar province of the training-groom. This person is much improved of late; but still there is in all these stables a great deal which, in point of sound practice, and now and then of honesty too, he knows will not bear the light; therefore he is exceedingly cautious how be admits in the stable the man who will detect at a glance the errors of which he himself is beginning to be conscious, although he obstinately clings to them. So far is this carried, and that not merely at Newmarket, that we know two cavalry regiments, into the stables of the commanding officer of which the veterinary surgeon is not admitted, and the colonel does not dare admit him, because he would incur the high displeasure of his master, the groom.

The whole management of the training-stable is a perfect mystery. Each groom has his own peculiar mode of training and of doctoring, which he guards from the inspection and knowledge of others with the most scrupulous care. What takes place in one stable is not supposed to be known to, and is concealed as carefully as possible from the inmates of another. The veterinary surgeon, if he is suffered to enter there, will develop, and may divulge the mystery; he may reveal a secret supposed to be well worth knowing; or he may throw discredit on a system which has been the foundation of the trainer's reputation and profit. And veterinary surgeons have not always been discreet: they have forgotten the obligation which they should have felt, if they did not formally take it—to see and hear, but say nothing. The secrets of the prison-house have sometimes escaped, to the annoyance or discredit of the groom, or the loss of the owner.

In such an establishment, the veterinary surgeon will always be most unwillingly sent for; because it may make a most serious and ruinous change in the odds, if it be suspected that there is any thing amiss. The veterinary surgeon, once called in, must be aware of the real state of the stable; and there are plenty of knowing ones about such a place, who will artfully obtain some information from him, or some hint, at least, which they may turn to their own account and the injury of the owner of the

horse. He must have more discretion than falls to the lot of most young men who will not sometimes incautiously commit himself here; and the fear that he may incautiously divulge that which should be as secret as the grave, will close against him the door of many of these establishments. He can scarcely say a word on his most favourite topic, the structure, and the powers, and the management of the horse, that will not be perverted. He is most perplexingly situated,—he must shew himself master of his profession, and yet he must weigh well every word, lest it should be supposed to have reference to some particular horse, and indicate his opinion of that horse, and disarrange the books of the owner or of the groom.

A gentleman once called on a friend of ours, and asked him whether he would go a considerable distance to operate on a turf horse, and pledge himself that he would make no attempt to discover to whom the horse belonged, or mention it to any one if he should accidentally discover it, or, for a certain time, speak to any one of the direction or object of his journey. He was taken to a little country town, at the best inn in which his quarters were established; thence he had to walk a mile to a lonely farm to see his patient. He was always met there by one or two gentlemen, who introduced themselves by some common name, and frequently they returned and dined with him at his inn; but he never knew who they were, and the people of the inn did not suspect his business. When the patient was convalescent, he was handsomely remunerated and dismissed, shrewdly guessing, indeed, with whom he had had to do, but refraining from making the slightest inquiry, and to the present hour not assured that his suspicions were well founded*.

With all this mystery attending the common concerns of the stable, and every precaution and suspicion redoubled when any

* Two or three years ago, a horse, that afterwards won one of the great stakes at Epsom, was somewhat amiss, and the writer of this article was requested to attend him. He saw him daily for a week, but never at the owner's stables, and never twice at the same place; generally in some unfrequented road, and in very different directions, and in such a manner that the meeting should seem to be perfectly accidental; the consequence of which was, that the fact of his not being quite right was never generally known, or even suspected.

thing is amiss there, a young man must be well known before he is employed; and many *a plant* being set upon him, he must have a great deal of self-command and prudence if he does not sometimes say a word or two too much, and which may be misunderstood and perverted in a way that he could not dream of.

But, supposing that he possesses all this self-command, neither the groom nor the owner will give him credit for it. They will bestow on him very little of their confidence until they have tried him; and a long time may pass, and his little patrimony be spent, before he will have the opportunity to shew that he may be trusted.

The veterinary surgeon is fond of the horse: he cannot be a good surgeon if he is not. If he does not embark in his profession, and carry on his profession *con amore*, he is good for nothing. He loves to talk of and to witness the powers and energies of the horse; and, placed among those whose sole pleasure and whose bread depend upon the speed and the stoutness of the horse, who have more or less to do with every exhibition and trial of him, and who, from the peer to the groom, has each his betting book, it will be very difficult for the young practitioner to refrain from now and then sporting a little on the issue of some events. *If he does, his doom is sealed beyond redemption;* for he has to do with those who think every thing fair to accomplish their purpose—who are perfectly aware of, and ready to resort to any manœuvre (others would say, rascality) to effect their objects, and be on the right side of the post. They will judge of the veterinary surgeon by themselves and by all around them; and will conclude that he, too, may be disposed to do a little to make himself right, and that, therefore, he is a dangerous person to be admitted into their *sancta sanctorum*, except he should be on their side, and even then, they well know that it is possible to win a great deal by apparently losing a little.

These are a few of the circumstances which render it difficult for a young man to establish himself in a place like Newmarket. The old farrier (who, it seems, has pretty well feathered his nest), and Mr. Bowles, who lives at a distance, and the heyday of whose blood is now pretty well subdued; and his son, profiting by the example, and practising all the prudence and caution of his father,—they may succeed. The experience of a long series

of years, has proved that they may be trusted; but confidence, and confidence under such circumstances, will not be forced; it must be the slow growth of careful observation. A new and a young man may not have sufficient patience to wait until the fruit is matured; or, if he be not a man of a thousand, the fruit may be suddenly blighted by some incautious but venial error.

Without, therefore, any impeachment of the character of our profession, we may cease to be surprised, that no young veterinarian has succeeded there. He had not sufficiently considered the difficulties which he would have to encounter; he was not aware of the dangers which beset him on every side, and of the cold, reserved, apparently repulsive demeanour which it would sometimes be necessary for him, although most unwillingly, to adopt. But are there not other circumstances which would render it peculiarly difficult for a young veterinarian to establish himself in such a place,—circumstances not so much dependent on himself as on the school whence he emanated?

We will not go to the extent of our friend Turner, who maintains that "a man ought to be born a horseman in order to succeed as a veterinary practitioner;" but we do cordially agree with him, that except a man has been long accustomed to the horse, and is perfectly at home in the stable, and in all its manipulations, and in the management of the horse, he will labour under great disadvantages, and, during many of the early years of his practice, will be exposed to various circumstances of annoyance; and a little awkwardness in the handling or examination of the horse will sometimes be a crime for which no real skill can afterwards atone.

We will, however, put Newmarket for a moment out of the question, lest our remarks should seem to be, what they really are not, of a personal nature.

We had the pleasure of knowing two of those gentlemen who tried their fortunes there—one of them was a complete horseman as well as veterinary surgeon; the other had not been so much accustomed to horses, but he had laboured hard to acquire professional knowledge. Of the others we know nothing. But we will leave Newmarket, and consider the general estimation in

which the veterinary practitioner is held. Is it that which is satisfactory to us? When a young veterinary surgeon settles in a village or town, is so much importance in the public mind attached to the title which he assumes, that the stable of the gentleman or the sporting man is opened to him, and the empire of the groom and the farrier is at an end? Is the name of veterinary surgeon a passport to practice? No—far from it. And why not? Because there has not been time for the value of the profession to be duly estimated; because the prejudices of grooms and masters will very slowly yield to the strongest evidence. We are, perhaps, a little too impatient—we are expecting that to be done in a moment, which in other cases is a work of time, and of a long time too. But is the veterinary surgeon what he might have been, and what he ought to be? We have said that he ought to be a horseman. There are a thousand little but important things about the horse which long acquaintance with that animal can alone teach; and who can handle a bullock that has not been used to the farm-yard? Do all veterinary surgeons know how to go up to the horse, or to handle the bullock, or, the moment they enter the stable or the farm-yard does not the groom or the bailiff detect and sneer at their awkwardness and ignorance? If it were not invidious, and if the very persons to whom we refer were not aware, painfully aware of their deficiency, and labouring hard and honourably to overcome it, we could produce a list of many scores who had scarcely seen a horse, and certainly never handled a bullock before they entered the veterinary college, and yet in six or nine months were dubbed veterinary surgeons. It was an infamous system. We scrutinize not the motives that led to its adoption; but this *presto-pass* manufactory of veterinary surgeons was the bane of the profession;—this multiplication of incompetent practitioners degraded it in the estimation of the master, and made it the laughing-stock of the farrier and the groom.

The strong feeling of the profession and of the public has, however, here prevailed; and a twelvemonth's —— what?—attendance on the lectures of the college? No! for the student may go quietly home again, or he may go where he pleases—but the lapse of a twelvemonth from the payment of the twenty guinea fee is re-

quired before he can apply for his diploma. This, however, is a point gained; and it will gradually, and not slowly, tell for the respectability of the profession. Yet the attendance, and not the lapse of time, should be regarded; and, beside, for those who have not had previous advantages—who have not lived among horses and cattle, or have not been connected with a veterinary practitioner, a twelvemonth is a sadly inadequate time—inadequate to become acquainted with the structure and diseases of the horse—ridiculously so when the numerous patients of the veterinarian are considered. Time and good sense, and strongly expressed feeling, will remedy this too.

And then the employment of that little time, has it not contributed likewise to the degradation of the profession? What can be expected from that young man to whom the general symptoms—the distinguishing symptoms—the circumstances which lead to change, utter change of treatment in different stages of the same disease, have never been explained, no not with regard to a single malady; but who has been perplexed with theories, ingenious or whimsical, true or absurd, stated before any fact has been adduced—tortured to account for every fact, but never as it ought to be, the result of a patient accumulation and comparison of facts? What can be expected from that young man who, instead of being taught how to discriminate between the various diseases of domestic quadrupeds, and to adapt his treatment to the peculiar character of each, is taught to lump them together under one common name, and to adopt one mode of treatment for all; to call every chest affection, inflammation of the lungs, and to treat it as inflammation of the lungs; careless of the degree to which the really and essentially different diseases of the chest will bear depletion or purgation, abstinence or stimulus; and careless sometimes whether that inflammation of the lungs may not, in truth, be inflammation of the bowels or of the brain? What can be expected from him who, instead of suiting his treatment and his medicines to the varying state of his patient, has scarcely more than half a dozen drugs in his whole pharmacopeia, and those common and cheap? What shall we think of that young man who is suffered to depart from the college not knowing how to bleed or to ball, or to rowel or to

seton, and who never took off or put on a shoe in his life; who will send *balls* of aloes into the rumen of cattle, at the hazard of producing the suspension of rumination, and turn them out in the cold in hoose, to certain destruction? Or what pledge have we of the competency of him who is examined only by medical men, who know little of comparative anatomy and physiology, and nothing at all of comparative pathology, and by their professors, who, previously and long knowing the candidates, and the peculiar direction of the studies, and the peculiar forte of each, must be sadly puzzled themselves how to act impartially, and could, if they were base enough to do it, pass or reject whom they pleased, without any palpable partiality.

These are some of the circumstances that have retarded the progress of the veterinary practitioner, and rendered it sometimes so difficult even for those who deserve well, to obtain due estimation among their employers, and among their brethren of the medical profession. They have much unnecessary up-hill work to do before they reach their just level; but they do at length reach it, except in such a case as Newmarket; and perhaps having forced their way to public confidence, they are, probably, the more esteemed on account of the deficiencies of their brethren.

There are, however, many other things which have retarded the progress of our art, and to which we shall refer at no distant time, unless some of our intelligent correspondents will take up the subject, and give us the result of their experience. They would confer much obligation on us, and benefit their profession by so doing.

Review.

Quid sit pulchrum, quid turpe, quid utile, quid non.—Hor.

Traité Elémentaire de Matière Médicale, et Pharmacologie Vétérinaire; par M. Moiroud. Paris, 1831.

[Continued from p. 120.]

We continue our analysis of this work, not as embodying our opinion of the action of the various medicaments,—far from it; but as putting our readers in possession of the Materia Medica of the French School.

M. MOIROUD proceeds to the SECOND CLASS OF GENERAL STIMULANTS;—medicines which tend to augment the contractility of the fibres, and, in consequence, to strengthen the tissue of the organs, without producing any marked astringent effect, and designated as *tonics* and *strengtheners*. These medicines principally exercise their influence on the insensible movements of the intimate tissue of the living parts, and which are the result of that power called by physiologists *tonicity;* and thence the term tonic. The word strengthener expresses a secondary effect, more variable and more uncertain, and which may be in many therapeutical agents essentially different.

Tonics augment the elasticity of the tissues, and render them stronger and more contractile, without increasing their sensibility or raising their temperature. Their action, at first confined to the parts to which they are applied, gradually extends over the whole frame, if their use be persevered in.

Being taken into the stomach, their first effect is to excite the appetite, to augment the energy of the organs of digestion, and to render that function more rapid and more complete, the intestinal absorption more active, and the fæces of greater consistence, and less frequently expelled. This first impression is extended by sympathy and absorption, and the heart acquires new energy—the pulse becomes fuller and stronger, and the respiration is deeper. The assimilation of the food becomes more completely effected—the blood richer, and the nutrition more abundant: the absorption is also increased, not only in the mucous surface of the alimentary canal, but in the meshes of the cellular tissue, and the great abdominal cavities: therefore tonics are indicated in certain chronic dropsical complaints, and in infiltration of the subcutaneous tissue. The secretions are also affected: they are rendered more regular and healthy. No appreciable physical change is produced by tonics on the tissues, or it is only by their influence on the vital powers that we recognise their agency.

Tonics are indicated in all diseases essentially connected with debility, and in those that are accompanied by a prostration of strength, as in certain stages of typhoid complaints. Although intermittent fever is little known in veterinary medicine, the *anti-periodical* power possessed by tonics is useful to prevent those returns of exacerbation which accompany some maladies of domestic animals. They are also useful in the advanced period of catarrhal affections, in chronic irritations, and in the weakness which so often accompanies the stage of convalescence.

Even when lowered they are injurious in acute inflammation, in some nervous affections, and in those chronic irritations which are accompanied by much pain.

When they are really indicated, their use should be persisted in for a considerable time. Tonics are often confounded with stimulants. The object of both is to rouse the powers of the system. The stimulants are preferable when there is marked inactivity of various organs, and it is necessary to excite a kind of medicinal commotion.

Tonics are indicated when we wish to produce a permanent effect—to arouse the energy of certain organs without awakening their sensibility, without quickening the circulation or increasing the animal heat.

IRON.—The different preparations of this metal act upon the constitution in a somewhat similar manner. Applied to the skin they produce no effect. Their action is scarcely appreciable when brought into contact with a wound or abraded surface; but when they are introduced into the alimentary canal they are slightly astringent, and they produce a tonic effect, powerful in proportion as the organic tissue was weakened. Under their influence the appetite is increased, fæcal discharges are lessened, and are of greater consistence, and more deeply coloured.

These phenomena, however, do not manifest themselves immediately, for the tonic action of the preparations of iron, is very slow in developing itself; but that action always finishes by being propagated from the digestive to the circulatory system, and thence to the whole frame. This species of diffusion seems to depend in a great measure, on the molecules of the iron actually mingling with the blood, and for which they seem to have a peculiar affinity. These molecules being easily absorbed by the inhalent mouths of lymphatic absorbents, enter into the circulation, and accompany the blood through the whole of its course, and penetrate into the parenchyma of the organs. They are also found in the urine.

Preparations of iron are used to combat debility of the digestive organs, chronic diarrhœa without inflammation, passive dropsy, the aqueous cachexy of sheep (the dropsy and decomposition of all the fluids which accompanies the last stage of the rot?) and certain chronic enlargements which seem to belong particularly to the lymphatic system. Many practitioners say that they have obtained unexpected success by the use of one of them (carbonate of iron) in some nervous diseases, and especially in those painful nervous affections, which have an intermittent type with occasional exacerbations.

Most of these preparations are given to animals in a state of powder, made into a mass with honey, extract of juniper, and some farinaceous substance, and in doses of from one to three ounces for the horse and cattle, and from one drachm to four for sheep.

Water impregnated with iron is often employed as a drink.

Stimulants, diuretics, and vegetable tonics, are often associated with the preparations of iron, varying according to the excitation or the effect, more or less complicated, that is wished to be produced. In every case, to obtain success from the exhibition of iron, it must be employed for a long time.

Peruvian Bark, in all its varieties, may be placed at the head of the vegetable tonics. It has little action, either applied to the skin in a state of powder, or in an aqueous vehicle; but when it is brought into contact with a mucous membrane, or a part deprived of the cuticle, it has a marked astringent effect.

When administered internally, in tolerably strong doses, it produces excitement and heat in the gastro-intestinal canal, a slight increase of pulse, and increased activity of the greater part of the functions: but its powers of excitement are not the least remarkable or important which it possesses. This valuable drug possesses the property of impressing on the tissues certain modifications unknown in their nature, but perfectly known in their result; and tending more effectually than any other bitter tonic, or than any thing with which it can be compared, to prevent both the attack and the exacerbation of certain diseases.

The salutary influence of this drug is equally remarkable, but also in a way scarcely more understood, in arresting those affections which are characterised by a tendency, altogether peculiar, to decompose the blood and disorganize the tissues. Hence it used to be called an *antiseptic* or *antiputrescent*.

Whatever be its mode of action, experience has shewn that the bark is highly useful in the contagious typhus, and malignant epidemic of cattle; in gangrenous affections of the lungs; in certain varieties of acute mange; in that disease generally, and in all inflammations that threaten to terminate in gangrene.

The immoderate or improper use of bark, as that of all medicines endowed with great power, may be injurious. Acute irritation of the digestive organs would more especially counter-indicate its employment.

The salts of the cinchona have not superseded the use of the bark itself; for although the other substances with which it is naturally associated have but a secondary medicinal action, they may, and do in many cases, advantageously modify the agency of the main principle. We have, however, used the sulphate of quinine with considerable benefit in the chorea of the dog, and especially when it was characterised by periodical exacerbation.

A veterinary surgeon, under the impression that the rot of sheep bears some analogy to the pernicious intermittent fevers of the human being, has strongly recommended the use of the bark.

Peruvian bark is applied exernally, or in the form of decoction, to cleanse indolent ulcers, and to correct a tendency to gangrene. By a species of chemical combination it arrests the progress of putrefaction, and arouses the energy of the living parts, so that they are enabled to separate themselves from the gangrened.

Administered internally, it is generally given in the most simple form, in powder, mixed with honey or treacle, or extract of juniper; or in decoction, in the proportion of an ounce of the bark to a pound of water. The decoction furnishes an abundant precipitate by the addition of any of the salts or oxydes of iron, or antimony, or corrosive sublimate, and hence the necessity of never prescribing these substances in combination with barks given in a liquid form: the iron, however, may be given without inconvenience with powdered bark. An infusion of bark will always be found preferable to a decoction. Acetate of ammonia, camphor, snakeroot, gentian, elecampane, and willow and Indian chestnut bark, may be added to the Peruvian bark, whether it be to modify its effects, or to lessen the expense.

The dose, whether in powder or decoction, may be carried to four ounces for large quadrupeds, and four drachms for smaller ones; but the ordinary dose is one or two ounces for larger, and one or two drachms for smaller quadrupeds. If the sulphate of quinine be employed, only one-fifteenth or one-twentieth of the quantity should be given.

GENTIAN occupies the first rank among our indigenous tonics. Its effect is more slowly developed than that of bark, but it is more permanent. It is especially indicated in maladies that are accompanied or followed by sudden prostration of the vital powers, or that are characterised by radical debility. Its usefulness has been proved in many epizootic diseases, the inflammatory character of which was not fully developed, or of short duration. It is an excellent stomachic: it recalls the appetite, and assists digestion. It prevents the evolution of worms in the alimentary canal, or favours their expulsion. It is at once a stomachic and a vermifuge.

As a simple bitter tonic it is often preferable to any other medicament of the same class, not excepting Peruvian bark; but this last is a better antiseptic and *antiperiodical* (cutting short intermittent diseases). Oak, willow, and Indian chesnut barks are frequently added to it. Without contesting the utility of mixtures of this kind, neither of these can bear comparison with the Peruvian bark, the efficacy of which depends not only on the tannin which it contains, but, most of all, on the bitter alkaline principles which it possesses.

Gentian may be given in the form of powder, decoction, infu-

sion, or tincture: the dose varies from one ounce to four for the larger animals.

The gentian root, cut into a conical shape, is often used to dilate fistulous openings. The bitter and tonic principles of the gentian are found in the greater part of the plants of the same genus, and even of the same family. The little centaury and the buck-bean are endowed with an intense bitter, that resides principally in the green portions of the plant, and are tonic and stomachic.

Elecampane. This root appears to be possessed both of stimulant and tonic power. It rouses and warms the stomach, quickens the circulation, and thus develops more animal heat. It augments the contractility of the fibres of the organic tissues, and gives them increased power. It is by this double action that we account for the diaphoretic agency of this root, its uterine influence, its utility in serous infiltrations, in difficult parturition, and in chronic catarrhal affections. The doses are the same as those of gentian.

Box. The bitter and nauseous flavour of the box announces energetic properties, and one would be astonished that it is so little prized. Raspings of the box would seem to be a good succedaneum for guaiacum in rheumatic affections, chronic diseases of the skin, and even glanders and farcy; but the effect has never been certain, nor to the extent that might have been expected.

Burdock has been praised by some as a sudorific, and as beneficial in rheumatism and chronic affections of the skin; but its virtues have been considerably over-rated.

Garden patience *(rumex patientia)*. The root of this plant contains much starch and free sulphur. It partakes of the properties of the burdock, and is of little value.

Cultivated and common reed-grass. Once said to be cardiac, stomachic, and sudorific, but the use of it now abandoned.

Star and blessed thistle. Decidedly tonic.

Soapwort. Sudorific; depurative in skin affections; used for rheumatism and for chronic visceral obstructions, but possessing no great power.

Wild Succory. Possessed of evident tonic power, but not much used.

Quassia. A powerful tonic and stomachic, but superseded by the gentian.

Angustura. A good tonic, and more powerful stomachic than the quassia, but likewise superseded by the gentian.

Fumitory. Sometimes employed as a bitter tonic in the treat-

ment of many chronic affections of the skin and of the abdominal viscera.

Hop. The hop is a powerful tonic, but its base, the *lupuline*, is too expensive for common use.

The olive tree. The leaves and the bark have an extremely rough and bitter flavour, and possess tonic and antiperiodical powers: they form one of the best substitutes for Peruvian bark.

The lilac. Possessed of considerable tonic and antiperiodical power.

[To be continued.]

Extracts from Journals, Foreign and Domestic.

Observations on Commercial Veterinary Jurisprudence.

By M. Bernard, *Assistant Professor at the Veterinary School of Lyons.*

The various provinces of France were formerly regulated by customs differing from, and often contrary to each other, and by usages yet more bounded in their adoption, and more defective.

Usage, say the lawyers, is law not written; custom is written law, the compilation of which has been ordered by sovereign authority.

Usage, according to Denisart, is established by the free consent of the people, and insensibly assumes the character of law when long tradition has sanctioned it: it, nevertheless, leaves room for too much dispute. As it is not written, every one pretends to have a rule for himself, and will find witnesses to depose *pro* or *con* according to his wishes. Hence appears the necessity of reducing these usages into some acknowledged form; and St. Louis was the first who attempted to accomplish this important object. These customs, too defective, were revised at different times; and at length were reduced into proper form under Francis I, by Bourdot de Richebourg.

The *civil code* has since appeared, and, more in unison with our state of civilization, has caused this diversity of laws to disappear, which could only have belonged to the legislation of other times.

Animals so useful in agriculture and commerce could at no time be passed over in silence. The Romans considered them as objects of commerce, in the same light as their slaves; and there is every reason to believe that there were the same laws relating to the purchase and sale. Common custom has always considered these animals as a special object of commerce, and has

agreed on certain defects which should prohibit the sale of them: the law, therefore, would only interfere to regulate customs and usages which were founded in error. In fact, usage was introduced when veterinary medicine was in a most deplorable state; when grooms and farriers alone practised it; when the grossest errors prevailed as to the nature of the diseases of animals, their duration, their progress, and the time which was necessary to develop them.

Usage and custom then constituted the only evidence. The disease which constituted unsoundness in one country, did not do so in another; some maladies, which ought everywhere to be considered as unsoundness, were not recognised in any usage or custom; and there was no time agreed on for the development or discovery of unsoundness. In some provinces, the buyer was allowed thirty or forty days before he returned the animal; in other provinces, and for the same disease, usage allowed him only eight or nine. In the delay of forty days many diseases might be contracted, and the usage threw on the seller a responsibility which he ought not to incur; while, on the other hand, there might be other maladies existing at the time of sale, but which could not be fully developed in the space of eight days; and the usage would then deprive the buyer of his right of guarantee, or render it illusory.

Veterinarians, who were so often consulted in the purchase of horses and cattle, were long annoyed by these abuses; and they received with gratitude a general and uniform law which would overthrow these customs, the application of which was so little in harmony with the actual state of their art: and M. Huzard, the inspector-general, traced certain rules of veterinary jurisprudence, which the schools adopted, and which the tribunals of commerce at Paris and Lyons confirmed by numerous and equitable decisions.

Taking for their base the terms so precise as the 1641st article of the civil code, M. Huzard and the schools considered as unsoundness all concealed defects at the time of sale, and which the buyer had not been able to discover, and all vices or diseases which rendered the horse unfit for the work required of him, or which diminished his value so much that the purchaser would not have bought him, or would not have given so much for him, if he had been aware of them*.

The greater part of the tribunals of France continued, however, to receive as the guide of their decisions the ancient custom of

* Malleville thinks that the third case, in which the buyer would not have given so much for the horse, ought to be omitted, as encouraging fickleness in the purchaser, and shackling commerce.

the place; and an advocate of the royal court of Paris, M. Legat, in a little work entitled, "Manual for Dealers in Horses and Cattle, 1828," defended this ancient mode, in opposition to the decisions of M. Huzard, or rather of the commercial tribunals of the two principal cities, Paris and Lyons, and maintains that the old usages preserved in the "civil code" are the only proper base for the decisions of the tribunals.

I shall maintain that the legislation of usage, however originally founded in right, is altogether contrary to our present improved knowledge of the diseases of animals and that it is inapplicable, if *equity* is not a mere word, and if modern legislators recognise that eternal principle, *good faith*, which characterised the contract of sale among the Romans.

First question.—*What are the defects which constitute unsoundness, the civil law not having given us a catalogue of them?*

The civil code admits only as ground for action, diseases which are concealed; but there are many serious diseases, and constituting unsoundness, which are apparent, and of which the purchaser may easily be aware, such as strangles, cough, broken-wind, &c. On the other hand, there are defects recognised in these usages which do not always unfit the horse for his work, or diminish, except in a slight degree, his value, such as curb and osseous enlargement of the hock, while rabies finds no place in the list of unsoundnesses.

We shall better appreciate the defects of these usages, when it is recollected that, with the exception of glanders and broken wind, which are recognised in almost all the provinces, there is the greatest discrepancy with regard to soundness. Epilepsy in the horse is unsoundness only in Bresse; and in the ox only in some provinces; the scab only in Normandy, farcy only in Brittany, roaring only in the jurisdiction of the parliament of Paris, in the neighbourhood of Lyons, and some parts of Normandy. The usage of Bigorre, the Maine, and Anjou, alone recognises the hydatid in the brain; that of Berry alone mange in sheep; that of Gascony and Languedoc, inversion of the womb; and that of Dauphiny and some others, obscure and occult lameness; and there are very few usages which have any reference to the unsoundness of the mule or the ass. The usage of Artois guarantees against all unsoundness that cannot be recognised on the examination of the dead body; and an ordonnance of the police of Paris renders the cattle-merchants answerable to the butcher of Paris for all the cattle that die within eight days after the sale. Who does not see how unjust many of these usages are, and the disputes to which they must necessarily lead? We everywhere find in them only an absurd and injurious diversity,—a diversity as it regards diffe-

rent species of animals, and a greater diversity in different provinces, and often in the same province; and never founded on reasons resulting from the locality of the place or the nature of the disease.

If, therefore, the principle of the new law had been to offer a guarantee to the purchaser, either confiding too much on the honour of the seller or not qualified to detect the vices or maladies of animals, wherefore should this guarantee be given in one place and not in another? If epilepsy is a serious affection, which it is impossible to recognise except at the moment of attack, why should the buyer of an epileptic horse be unable to return him only in Bresse, or of one with farcy only in Brittany, or of one with the scab only in Normandy? Will it be said, that the buyer who knows that the usage of the place will not give him this power will be more guarded in his examination and inquiries? It may be replied, that all the precautions of the buyer will not enable him to recognise a malady the symptoms of which are not apparent.

It is not to multiply the maladies that are supposed to constitute unsoundness, already too numerous, that we demand that they should be the same everywhere; but, on the contrary, to diminish them, and only to admit those that are actually included in the article **1641**, and more especially to establish an uniformity of opinion on the principle which is recognised in that article, and which is founded on perfect equity.

It is not a question for veterinarians, how far the nature of the disease may vary with the locality. The influence of climate or situation may render a disease more or less frequent, may modify its duration and its severity, but cannot change its nature: it cannot render a disease apparent, the symptoms of which are not to be discovered; it cannot render that disease non-contagious which is readily communicated from animal to animal; it cannot render epilepsy and glanders any other than serious and incurable diseases, and which must make the horse more or less unfit for his proper work.

But let us return for a moment to the old jurisprudence, and suppose that a practitioner is required to determine whether a certain disease is one of those which the usage of the province recognises as unsoundness. It may not be easy for him to comprehend what disease is meant: none but an inhabitant of the same province would understand what affection was designated by the terms *pian*, *tat*, *game*, *gaminge*, *toune*, *follie*, *amoredot*, *antée*, *morve de corbe*, *morve de courbature*, &c. What authority will serve him as a guide? the farriers who have given this vulgar and incomplete description of the disease, or the writers

on jurisprudence who have adopted these strange and inexpressive terms. From these sources M. Legat has derived his definitions; but who is to inform us that *la follie* is a species of epilepsy? that *corbe, courbe, courbature,* mean the same thing, an indefinite ill-understood malady, a complication of maladies, a kind of lassitude, a general debility, or any state in which the respiration is not free and perfect; that *le morve de corbe* is suppuration in the lungs, &c. &c.

It is easy to perceive under what embarrassment the veterinarian will labour who has to pronounce an opinion on such authorities, and on descriptions so inexact and contradictory: what tribunal shall pronounce judgment, when the veterinary surgeon does not understand the case?

If one party denies the usage, how shall its existence be proved? by written custom, or the attestation of authors, or the jurisprudence of the country? But the written custom does not always record the usage, and the jurisprudence may be contested: some authors follow the written law, some the custom of Paris or of some nearer town, and some would refer to the general spirit of the common law.

The attestation of authors would afford no stable foundation for a just decision, for it is often the result of careless examination. The law of the place would seem the best authority; but it is not always consistent, and decisions contrary to each other are made every day: and then, to follow implicitly the law of the district when circumstances have changed, and the art has improved, is it not to limit or arrest the progress of science? It must adapt itself to the change of circumstances; and since the publication of the code, several things are recognised as unsoundness which were not so before. The tribunals, however, ought not to originate these changes, but to follow and confirm them. The progress of veterinary medicine, and a more profound knowledge of the diseases of animals existing among the numerous veterinarians that have issued from our schools, must bear upon and change the opinions and decisions relating to soundness. What interests are sacrificed by this gradual change?—not those of the buyer, for the new law offers him a more extensive and better founded guarantee: those of the seller may be, in some degree, because he will no longer be able, on the faith of usages, to obtain a large price for an animal of little value; and where would be the harm of that? When these changes have arrived, how will they be established? It will not be for the buyers and the sellers to go to the tribunals, and say that they have discovered new causes of unsoundness, of which the usages of the place did not speak; but the veterinary surgeon must be the

natural interpreter of the wants and interests of both parties; and he has long ago explained the change in the character of his art, and has demanded corresponding changes in the decisions of the tribunals. The tribunals have accorded these changes, and have established them.

M. Dunot, in his Treatise on Precedents, says "The facts on which custom is established should be just and reasonable; they should have in them nothing contrary to law natural or divine, to good morals, and government or public right; they should be authorised by the law of justice and equity:" and, a little farther on, "There is nothing in any positive human law which is not capable of change. It is expedient that it should be so, because a law, at one time just in its principle and in the views of the legislature, may become unjust and oppressive by the change of times, of customs, and of circumstances."

That time has arrived, and the law of usage has been long unjust and oppressive.

SECOND QUESTION.—*In what time should the action for unsoundness be commenced?*

Article 1648 of the code says the action should be commenced after the briefest delay, according to the nature of the unsoundness, and the usage of the place at which the sale was made. M. Legat here improperly considers the usage of the place of greater importance than the nature of the disease, considering that there is something definite in the usage, but very vague and uncertain in the nature of the malady. The truth, however, is, that the usage of different places is exceedingly different, while the unsoundness remains the same. We cannot change the nature of the unsoundness in order to follow the usage, but we can modify the usage, if it is defective, according to the nature of the unsoundness. The tribunals of Lyons and of Paris acknowledged this when they accorded, contrary to the usage, which says nine days, only twenty-four hours for spasmodic affection of the muscles, which can be perceived as soon as the animal is sufficiently at liberty to indulge in the bad habit. Some usages more reasonable than others have also endeavoured to apportion the time to the nature of the disease; thus in Gascony and Bigorre forty days are allowed for glanders and *courbature*, thirty for ophthalmia, nine for broken wind and discharge of bloody urine, forty for epilepsy, four months for *l'antée* (gradual wasting, phthisis?), and three months for the hydatid in the brain and *l'amoredat* (scab?). The same would be done every where if there were the necessary knowledge, and usage is as unreasonable with regard to the time allowed in the warranty, as it is in the nature of the unsoundness.

There is the greatest variety and disproportion of time allowed

in various provinces. In some it is thirty or forty days, or even three months, while in others it is not more than eight or nine days for the same thing.

Whoever knows any thing of veterinary medicine, must be convinced that there is not one of those affections which constitute unsoundness that will not generally develop itself in less than forty days, much more three or four months, even the most decidedly chronic of them, as broken wind, glanders, epilepsy, and rot, while there are but two, epilepsy and ophthalmia, which can possibly remain concealed so long. Two serious inconveniences necessarily follow—either that the unsoundness did not exist at the time of sale, but developed itself during the time allowed in the warranty, and thus the seller would unjustly suffer; or although the unsoundness might exist unsuspected at the time of sale, the buyer, being allowed so much more time than is necessary to discover that unsoundness, from negligence or otherwise, may wait until the last moment before he returns the animal, and thus the disease may be aggravated, and thus again the seller may be wronged; or very frequently the animal may be returned upon him, while the time for returning it to the first seller may have expired.

However, if it is conformable to equity to grant only twenty-four hours for the detection of maladies which may be recognised immediately after the sale, it would be unjust not to fix a longer time for the discovery of other intermittent diseases, between the attacks of which a long time often intervenes, as ophthalmia and epilepsy. If experience has proved that the mean time between the attacks of ophthalmia is from thirty to forty days, the mere delay of twenty-four hours, or even of nine days, which is the most common, will render the warranty altogether illusory; beside which, while the disease is, in every sense of the word, the most difficult to be detected in its latent state, so it is also one of the most serious, because blindness, through the opacity of the crystalline lens, ordinarily follows it, and there is, besides, almost always fraud in the case, for the seller can scarcely have been ignorant of its existence.

Before the new mode of deciding these cases was adopted at Paris, it often happened that a horse was bought at Cambray, and sent for sale to Paris. If he proved to be a roarer he was returned, because roaring was unsoundness at Paris; but when the horse was taken back to Cambray, the dealer had no remedy there, for there roaring was not unsoundness.

I will suppose, again, that a traveller buys a horse at Lyons. Arriving in Normandy six days afterwards, he sells that horse. It proves to be unsound. The Norman purchaser demands thirty days before he is compelled to return the horse, and the

traveller, ignorant of the unsoundness, has no remedy, for the nine days granted at Lyons are already nearly expiring.

The old system of jurisprudence is also too favourable to fraud. Men who have some knowledge of horses may be induced to purchase, at a low price, animals that are unsound in certain districts, and re-sell them in other distrcts, where the usage does not recognise them as unsound.

I conclude here these observations, which sufficiently demonstrate that the legislation according to ancient usage is inconsistent with our present knowledge of the diseases of animals, and contrary to natural right and equity, &c. I ask, and every veterinary surgeon will ask these lawyers, whether they do not find in the terms of the 1641st article of the civil code all that is necessary to establish a better jurisprudence, and utterly to reject the system of usage so destitute of just foundation; and whether in the article 1648, concerning the time for returning the animal, there is not in these words "*according to the nature of the unsoundness*," a consideration just and important enough to make them discard the usages which we have proved to be so defective.

If it is impossible so far to bend to our purpose an ancient law which the code has preserved, it remains that we should demand a law which should determine, in an invariable manner, the time allowed by the warranty according to the nature of the disease, and for which the veterinarians and the schools will afford sufficient guides; for the usages are absurd and oppressive: they furnish easy occasion for fraud, and fraud is inconsistent with the true nature of a sale, which the Romans called "contractus bonæ fidei." Through the fear of multiplying disputes, dishonesty has been multiplied in France. It is a system which tends to corrupt the spirit of the nation.

Recueil de Méd. Vét. Mai 1831.

We insert this long paper, to give our readers some idea of the state of opinion and of law in France regarding unsoundness. Veterinarians and lawyers are there even more abroad and more absurd on the subject of warranty than we are in England; and we sadly want some master mind to set us right. Mr. Castley and Mr. Percivall, and the Veterinary Medical Society, have done much; but, perhaps, we must not expect any thing conclusive while the heads of our profession *(proh pudor!)* differ from each other *toto cælo* respecting it. We again, however, invite our correspondents to the serious consideration of that which often annoys us, and sometimes not a little compromises our professional reputation.—Edit.

A singular Nervous Affection resembling Rabies.

While speaking of wounds produced by the bite of a rabid animal, Larrey* takes occasion to state his opinion as to the nature of *hydrophobia*.

"It is difficult," he says, "to explain how the virus of a rabid animal can remain latent in the system for a long time, can develop itself afterwards, and can end by producing the most terrible effects. It would, nevertheless, appear, that this subtle and unknown poison has a particular partiality for the nerves, and concentrates itself by preference in the nervous system; in which it can remain inactive for a lapse of time more or less considerable, on an average, as we have said, of thirty or forty days. Its effects, when it is developed, are purely nervous, and it is this fact which seems to justify this assertion."

It cannot be denied but that the most evident indications of inflammatory action attend the symptoms and distinguish the pathology of hydrophobia—that we have often inflammation of the œsophagus, pharynx and larynx, and occasionally of the brain and spinal cord; yet it is generally admitted, that these appearances are more the consequences than the cause of the disorder, and that although frequently present with, they are by no means essential to, the existence of hydrophobic action. Rossi of Turin has performed experiments which, were they sufficiently confirmed, must be regarded as strongly corroborative of Larrey's theory. He dissected out a portion of nerve from the body of a rabid animal, during the violence of its paroxysm, and making an incision into the flesh of a healthy animal, inserted this extracted piece of diseased nerve into the incision. After some time, the animal thus inoculated became equally mad with the one from which the poisoned nerve had been received, and died affected with the same symptoms. The following case will be read with interest, and strongly favours the author's doctrine—that hydrophobia is purely a nervous disorder. A soldier, æt. 20, had his thigh bit by a mad dog, when a youth of between fourteen or fifteen years of age. From this period, until he came under the care of Larrey, he did not cease to experience a kind of nervous affection, which was characterized by spasms and a slight aberration of the intellectual faculties. He was irritable, very loquacious, and was frequently agitated by automatic movements. He was emaciated, his eyes were haggard, he was often afflicted with vertigo and dimness of sight, and he felt an invincible repugnance against the sight of limpid fluids, even in circumstances in which his companions, oppressed by

* "Clinique Chirurgicale," par le Baron Larrey.

heat, were compelled to drink in his presence. He drank bitter ptisans, and other coloured liquids, with more or less avidity. These were his principal symptoms when he came under the management of Larrey; not on their account, but for a sprain of the right foot, which he had received during violent exertion. To this affection were soon superadded symptoms of nostalgia, and Courmontague expressed a strong desire to be dismissed the service. Obstinately bent upon this purpose, far from allowing his cure to proceed, he secretly employed means to swell the leg, and to aggravate the disease; so that in a short time gangrene appeared in the inside of the foot, and spread so hastily that the whole limb became sphacelated, and was amputated. After some attacks of traumatic irritation, caused by deviations from the prescribed regimen, two-thirds of the wound had cicatrized, when, on the thirtieth day after the operation, the patient suddenly refused all kinds of transparent liquids, and became attacked with signs of cerebral inflammation. He was convulsed, he locked his jaws, he ground his teeth, and fell into a complete state of tetanic contraction. All the excretions were suppressed, the spasm and rigidity increased, and during the night of the thirty-third he expired. On inspection, were found hypertrophy of the cranium, principally in the occipital region; considerable engorgement of the vessels, both of the membranes and brain, of the superior longitudinal sinus and plexus choroides; slight granulations on the surface of the hemisphere; about an ounce of yellow serum in the lateral ventricles; firmness and density of the whole brain, of the spinal cord, and especially of the tuber annulare, in the substance of which a red tinge was evidently manifest, and the neurilema of the spinal nerves were stained of the same colour. The mucous membranes were all healthy; except a few old adhesions, nothing morbid could be detected in the lungs; and all the viscera of the abdomen presented a natural appearance. The pericardium was firmly attached to the heart in its whole extent, but evidently by adhesions of a former date; its cavities were very contracted, and the great vessels which issued from it were not more than two-thirds of their ordinary size.

It is tolerably evident, from the history of this case, both before and after death, that the first and last symptoms by which it was distinguished were referrible to the wound occasioned by the bite of the mad dog; and that the poison which had been thus inserted in the system remained comparatively latent for the period of six years, giving rise to some anomalous nervous symptoms only, which scarcely if ever amounted to disease, until, meeting with an exciting cause, which awoke this dormant principle into full activity, the patient was no longer respited from its fatal

consequences. There are very many facts, however, in existence, relative to hydrophobia, which, in our minds, distinguish it clearly from ordinary tetanus; and, unless there was much stronger reason than there is for identifying these disorders, no one should make the attempt, as it is only calculated to lead the unthinking into a state of carelessness, with reference to what is now generally considered the almost exclusive cause of this formidable malady.

Med. Chir. Rev. July 1831.

We are perfectly at issue with the learned editor of the Review respecting the nature of this singular case. Rabies, as he truly says, essentially differs from tetanus: it is originally an affection of a different class of nerves, although ultimately all are involved. But more of this at no distant period.—EDIT.

BARON LARREY'S TREATMENT OF TETANUS.

HE has found it especially to invade the young during great vicissitudes of temperature, and such as were of a dry, irritable temperament. Fear of limpid fluids he states as a frequent symptom, and the absence of all intellectual disturbance, while the disease seems to revel in the nervous system, he is inclined to explain by believing that the nerves are not prolongations, but perfectly independent of the brain. In emprosthotonos, he has observed that the nerves usually affected lie on the anterior part of the body; in opithotonos, on the posterior part; while in complete and universal tetanus, both sets are equally implicated. After the battle of Waterloo, he had many opportunities of inspecting the remains of those who perished from tetanus in the hospitals of Louvain; and "invariably there were discoverable evident traces of inflammation on the spinal cord, with more or less effusion of a reddish colour within the sheath." Hence does he advise moxa, cupping-glasses, anodynes, and such applications to the spine as appear calculated to prevent or remove the cause of irritation. Internal remedies of every description, if they are not always useless, are soon rendered so by the patient's falling into a state of strangulation shortly after he is attacked. While he can swallow, opium, camphor, musk, castor, and alkalies may be given; and they are least obnoxiously given in the form of emulsion. The case of a Mameluke, belonging to Maurad Bey, is given, who was cured by internal medicines and warm baths. Eight grains of camphor, the same quantity of musk, and twenty grains of opium were dissolved in a glassful of common emulsion, and the half was given for a dose. A few minutes after this draught was taken, the pains were diminished, the jaws

relaxed, and sleep returned towards night. Next morning the patient felt much better; suppuration of the wound was re-established: the remainder of his medicine was taken as a second dose, all went on favourably, and he proceeded along his journey in return to his prince. Friction with oil, which some have so liberally extolled, he has not found to do any good; cataplasms made with the leaves of tobacco have been fruitless, and mercurial unguents produced only evident evil. "The employment of this last remedy," he observes, "even against syphilis, requires, in Egypt, the greatest care; for this mineral, administered in that climate as it is in Europe, has occasioned the worst consequences, among which we may enumerate madness and diseases of the liver." When tetanus appears after the wound has healed, cutting freely down upon the cicatrix is strongly recommended; but if after a ligature has been applied, it is probable that some nerve is included, and the ligature should be removed. In all compound fractures and dangerous wounds of the extremities, complicated with tetanic symptoms, the baron's only sheet-anchor is the amputation knife. From the success which he has experienced in removing tetanus by amputating the wounded part, he has been encouraged to make the following proposal:—"If in tetanus, induced by such a wound of the extremities as would not on its own account demand amputation, it be not better to remove the limb immediately tetanic symptoms appear, than to expect from the resources of nature and most uncertain remedies a very doubtful cure?" We cannot enter into his defence of this proposal, which merits serious consideration; but he concludes it by saying that, "although I regret not having a greater number of recoveries to attest the value of this plan, I yet have sufficient to conclude that amputation, *faite à propos*, appears to me the most certain means of arresting and removing the effects of tetanus which depends on a wound situated upon the extremities."

The baron's favourite caustic is no mean remedy in tetanus, as well as gangrene; and the recovery of the patient with whose case we shall conclude these observations upon this disease, which the author considers *one of the most remarkable in military surgery*, cannot certainly be ascribed to any inferior agent. A soldier was struck by a ball, which carried away a part of the spine belonging to the right scapulum, a portion of the trapezium, the sub and supra-spinati muscles. The shattered tendons were cut away, the lacerated pieces of muscles were removed, some splinters of bone were extracted, and the wound was carefully dressed. All went on well for some time, and the circumference of the wound began to cicatrize, when symptoms of tetanus sud-

denly appeared, and in a few hours after their appearance complete opisthotonos was established. Diaphoretic fluids and large doses of opiates were administered; oily, camphorated, and narcotic lotions were applied over the body. The purulent secretion being suspended, the cicatrix made rapid progress, and in forty-eight hours it covered the half of the wound. At this period the patient felt in the cicatrized part a painful sensation, as though the edges of the wound had been enclosed between a pair of pincers; and the slightest pressure upon the delicate cicatrix, more especially of metals, as iron or steel, obliged him to emit piercing cries. Every tetanic symptom gradually increased; the superior extremities became rigid and were turned backwards, the cervical vertebræ were completely pulled down, and the power of deglutition was lost. In vain were two incisive teeth extracted, in order that medicines might be introduced into his stomach: not a drop got into the œsophagus, and the mere sight of pure water induced the most frightful convulsions. He foamed freely at the mouth, every symptom heightened, and this wretched man, whose bodily agony was tenfold enhanced by a complete consciousness of his situation, had nothing, to all appearance, before him, but the prospect of a sad and sudden death.

When the disease had arrived at this crisis, Larrey resolved on trying the actual cautery.

"With this view," says he, "I made red, even to incandescence, four large cauterizing irons; and I applied them in succession over the whole extent of the wound, so as to bear more strongly over those points of the cicatrix where I suspected the principal branches of the accessary nerve of Willis (spinal nerve) to be compressed and swollen. This application was extremely painful; nevertheless I had firmness enough to continue the operation until all the surface of the wound was deeply and completely seared. Scarcely was this effected when a general stop was put to the progress of the disease. The patient voluntarily sat up and asked for drink, and the jaws separated spontaneously. Sixty drops of laudanum, and a few drops of Hoffman's mineral liquor were given him in a glassfull of almond emulsion, in which a little nitre had been dissolved; the narcotic and camphorated liniments were repeated, and the body was enveloped in warm flannel. The skin perspired profusely, a perfect calm came on, which was succeeded by a deep sleep; and the next morning I found my patient free from every tetanic symptom."

The future dressings of the wound were simple; the eschar separated in nine or ten days, cicatrization recommenced speedily and without pain, and, beyond a little stiffness in the right arm and shoulder, Demoré was completely restored to health.

Med. Chir. Rev. July 1831.

THE

VETERINARIAN.

VOL. IV. SEPTEMBER, 1831. No. 45.

ANATOMY OF THE HORSE.

[Continued from page 245.]

Section III.

CIRCULATORY SYSTEM.

THE CIRCULATORY SYSTEM COMPRISES THE BLOOD, THE BLOODVESSELS, AND THE HEART.

OF THE BLOOD.

BLOOD is the red fluid we see issuing from a fresh wound, and of which there is a considerable quantity circulating through the body of a living animal. So uniform is it, while circulating, in its appearance, that it looks like a simple or homogeneous fluid; a character it does not lose until some time after it has been drawn out of the body, and then it gradually assumes a change from a fluid into a solid mass, resembling jelly. In the fluid state it possesses a faint odour, a saline flavour, has an adhesive unctuous feel, and is some little (specifically) heavier than water: the latter being equal to 1000, blood may be estimated at 1090. Also, so long as it continues warm, it is perceived to emit from its surface a *halitus*, or vapour; which is nothing more than ordinary steam, excepting that the evaporation may carry up with it minute particles of animal matter: a circumstance that will account for the peculiar odour it is known to convey.

It has been observed that blood, soon after its removal from the body, concretes into a solid gelatinous mass. This spontaneous change, called the coagulation, proceeds gradually to completion, until we discover the formation of two very different component parts: one solid, denominated the *clot*, or *crassamentum;* the other fluid, named the *serum*. The process of coagulation is completed in the blood of the horse in about twenty-five minutes: in that of a man it requires only seven. The relative proportions of the crassamentum and serum will be found to vary in the blood of different animals, and in that even of the same animal

at different periods, depending on the state of health and condition of the subject from which it is drawn. In man, the crassamentum may be said to amount to about one-third of the weight of the serum; in the horse, the solid will bear nearly an equal ratio with the fluid portion.

In the more perfect, or, as they have been denominated in contradistinction to the others, the warm-blooded animals, the blood is everywhere found, while circulating in the living body, to be of a certain degree of heat; and this it steadily preserves in its circulation through the inward parts of the body, uninfluenced by the surrounding temperature. In all unexposed parts the heat will exceed 100° of Fahrenheit's thermometer; it has been found, however, by experiment, that this degree is not equally maintained in the more superficial situations of the body: what these variations are we have but little to do with, though they may be ascertained by the aid of the thermometer, at any time, with precision. But in the lower orders of animals, or such as are called cold-blooded, the heat of the blood corresponds with that of the medium in which they live. We are not, however, to suppose that the temperature of this fluid is never subject to variation, even in perfect animals, for it is found to be much influenced in them by disease: *e. g.* in the human subject, in whom the heat of the body is, in health, 98°, it has been known to rise to 110° during fever; and, in all superficial parts, increased heat is one of the essential symptoms of inflammation.

The heat of the horse's blood, while flowing into a basin, is 100°. If the bulb of the thermometer be introduced into the wound, the quicksilver will rise to about 101°. The temperature of the more superficial parts of the body will, in course, vary with that of the surrounding atmosphere. Mr. Hunter found that the thermometer, introduced into a wound two inches deep, made into the gluteal muscles of an ass, indicated 100°; and that the heat of the vagina was the same. The interior of the chest of the dog he ascertained to be 101°.

The *colour* of the blood is red. Not in all animals, however; for in such as are called cold-blooded—in most fish, their gills excepted,—and in insects it is colourless and transparent. So, likewise, it is in *parts* even of such animals as are warm-blooded; as, for example, in the common domestic fowl, in which the breast and wings are delicately white, while the legs and body partake of a dusky red hue. I believe the blood of the horse is not so high-coloured as that of a man, and that the latter yields in brightness to that of a dog. All this seems to argue that colour is not an indispensable property.

The *quantity* of blood contained in an animal body may be made matter of speculation, but cannot, for many reasons, be ascertained with any degree of precision. If we attempt to draw all the blood out of the body, the animal sinks and dies long before its vessels are evacuated; and as we possess no means of measuring what remains behind, any calculation we may make from the quantity that has flowed must necessarily turn out vague, if not altogether incorrect. The following experiment will serve to illustrate this; at the same time, that its result may serve as a *datum* to guide us in any future computation.

The weight of the animal being ascertained to be 79lb, a puncture was made with a lancet into the jugular vein, from which the blood, which flowed in a very free stream, was collected. The vein having ceased to bleed, the carotid artery of the same side was divided, but no blood came from it: in a few seconds afterwards the animal was dead. The weight of the carcass was now found to be 73½lb; consequently, it had sustained a loss of 5½lb, precisely the measure of the blood drawn. It appears from this experiment that an animal will lose about 1-15th part of its weight of blood before it dies; though a less quantity may so far debilitate the vital powers as to be, though less suddenly, equally fatal. In the human subject the quantity of blood has been computed at about 1-8th part of the weight of the body; and as such an opinion has been broached from the results of experiments on quadrupeds, we may fairly take that to be about the proportion of it in the horse: so that, if we estimate the weight of a common sized horse at about 12 cwt., the whole quantity of blood will amount to 84 qrts., or 168lb, of which about 45qrts., or 90lb, will commonly flow from the jugular vein prior to death; though the loss of a much less quantity will sometimes deprive the animal of life*. It is well known that young animals possess more blood than old, and that they will, perhaps, on this account, sustain greater bodily injuries, and bear larger hemorrhages; indeed, they are wisely provided with such an excess, if we may so term it, in order that their growth may be promoted, and their several organs maintained in a state of vi-

* Supposing a man to weigh 12st., or 168lb, the quantity of blood contained in his body may be rated at 21lb, or 2gall. 2qrts. and 1pint. Again, granting that a dog weighs 40lb, the amount of his blood will be 5 pints. These calculations are useful and worth our attention, inasmuch as they serve to guide us in practice, as to the probable extent to which we may, with safety, carry venesection in different animals. For instance, we may reckon the loss of a pint from a man to be equivalent to that of a gallon from a horse, or to four ounces from a dog, and *vice versâ;* selecting individuals from each class about the respective weights we have here set down.

gour: but in old, in which the body is gradually decaying, and the powers of life declining, the quantity of this fluid becomes reduced. Mr. Wilson, in his *Lectures on the Blood*, &c., says, that "fat animals are found to possess less blood than leaner animals; and tame animals, which are confined, less blood than wild ones."

If we take the crassamentum, the solid clot formed by coagulation, and wash it, we shall, by repeated ablution, deprive it of its red colour, and find that we have still remaining a tough gelatinous substance; which, when broken, exhibits a *fibrous* appearance, and on that account has received the appropriate name of

FIBRIN.

Some, however, call it by a name of much older date; viz. *coagulable lymph*. Only let us understand that both mean the same thing. It may be made, artificially, to assume a more perfect fibrous aspect, by stirring the blood as it flows from the body during coagulation, or by receiving it into a bottle, and shaking it therein while it is congealing. In either case it will be made to assume a very similar texture to muscular fibre, which it also resembles in its chemical composition: and the resemblance may become so perfect, that it may seem well to merit the appellation given it by the old physiologists of "liquid flesh." The similar toughness of consistence which it acquires will not become manifest for some days after its coagulation; for I have found that the crassamentum will continue to contract, and very gradually become smaller (at the same time squeezing out serum), even for more than a week from the time of the detraction of the blood.

So singular a phenomenon as the spontaneous coagulation and decomposition of the blood presents, could not fail to attract the attention and consideration of those engaged in physiological pursuits; accordingly we find various reasons assigned for it by the old writers, and yet no one, even up to the present hour, has been able to solve the vital problem. The two most obvious changes of condition to which it is subjected are rest, and exposure to air or cold. But, as we have just seen, it will congeal though it be kept stirred or shaken in a bottle; at the same time, let it be observed, that a very brisk agitation will maintain its fluidity: an effect arising, probably, from the natural attractiveness of the particles for each other being artificially counteracted until it ceases altogether. Neither is exposure to air or a diminished temperature the cause, for blood will coagulate *in vacuo*; and is, likewise, often found in clots in vessels and cavities of the body, with sufficient evidence of its having been so during

life. So that neither of these causes will account for the coagulation, though experiments constrain us to admit that they both seem somewhat influential.

Other circumstances and agents also affect the coagulation. It will congeal sooner when drawn from a small orifice, or allowed to trickle down the side of the vessel or the animal's neck, than under opposite circumstances. Various chemical agents thrown into the vessel will effect its coagulation at once: such are certain of the neutral salts, acids, alcohol, and alum.

Of the various conjectures and opinions that have been framed to account for this miraculous change in the blood, none seems so well worthy our attention as that left us by the famed John Hunter. He ascribed the coagulation to the presence of a *vital* principle in the fluid. To use his own words: "To conceive that blood is endowed with life while it is circulating, is, perhaps, carrying the imagination as far as it can go; but the difficulty arises merely from its being a fluid, the mind not being accustomed to the idea of a living *fluid*." He next proceeds to shew, "that organization and life do not depend in the least on each other; that organization may arise out of living parts and produce action, but that life can never rise out of, or depend on, organization." And, in the third place, he evinces, by many ingenious facts and experiments, a striking analogy between the coagulation of the blood and the contraction of muscular fibre. Animals killed by lightning or electricity have not their blood coagulated, nor their muscles contracted. Those that are hunted to death, or, in fact, in any way suddenly extinguished, exhibit the same coincident phenomena; also their bodies are more disposed to run into putrefaction. From all which evidence, Mr. Hunter concluded that blood, in a living body, was possessed of what he termed a *materia vitæ diffusæ*.

Dr. Bostock objects to the Hunterian doctrine on the score that, even were "the life of the blood fully established, it would not offer any explanation of the cause of its coagulation; for the same difficulty (adds he) still remains, in what manner the presence of life operates, so as to produce either the coagulation of the blood or the contraction of the muscles." But this remark is one that would equally apply to all vital phenomena. The Doctor gives it as his opinion that, "perhaps, the most obvious and consistent view of the subject is, that *the fibrin has a natural disposition to assume the solid form*, when no circumstance (either chemical or mechanical) prevents it from exercising this inherent tendency."

RED PARTICLES.

It has been observed that, by repeated ablution, the crassamentum may be deprived of its red colour, and thereby converted into fibrin alone: the water that has been employed for this purpose will be found to be rendered *red*—bloody,—as it is termed; an effect arising from the commixture with it of the part of the crassamentum now under our consideration, viz. the red particles. The colour of the blood is owing to the presence of innumerable *particles* or *globules*, which are uniformly diffused through it in the fluid state; and, in the coagulated, become entangled within the substance of the fibrin. I have already remarked, however, that blood is not red in all animals, nor even in every part of the same animal; still (according to Hewson) this white or colourless blood possesses globules similar in form and structure to the coloured ones. The same author likewise informs us, that the globules are of different magnitude in different animals, but that their volume bears no sort of proportion to the size of the animal; they being as large in the mouse and cat as in the ass and ox, larger than either in birds, and largest of all in the skate.

In making these observations, however, I should remark that no part of the body has afforded a wider field for speculation than these red globules. Being so very minute as only to be discoverable at all through a microscope, their shape and magnitude have become variously reported on according to the varying circumstances under which these microscopic examinations have been conducted: to one they have appeared in the form of perfect spheres; to another, as rings; to a third, as flattened vesicles. Dr. Young (whose account is recent, and pretty nearly coincides with that of Hewson) found the globules in the skate to resemble an almond in form, only to be less pointed and somewhat flattened, and consisting of an external envelope containing a central nucleus; as represented here below.



We are further informed by experimenters, that the colouring matter of the globule resides principally or entirely in its external covering, the central nucleus itself being without colour; and, also, that it is only the coloured envelope which is soluble in water; the nucleus still retaining its form while floating, and being obtainable in an entire and separate state.

Their magnitude has given rise to as much latitude of opinion

as their shape. Dr. Young estimates a globule of human blood at $\frac{1}{5000}$ of an inch in diameter: and we may as well sit down contented with this, as spend our time in searching after other evidence, perhaps, after all, less conclusive.

The colour of the globules is materially affected by atmospheric air. If a clot of blood contained in a basin be examined, its upper surface, which has been exposed to the air, will be found to possess a bright scarlet colour, while the lower or unexposed part will appear of a dark Modena purplish hue: only invert the clot, however, and in a short time that part which is dark will turn to a bright red, while the other (now excluded from the air) will change to a dark purple aspect. This change of colour is wholly ascribable to the action of the oxygenous part of the air. Experiment has fully proved this fact; and also, that the other ingredient of the atmosphere, viz. azote (as well as the carbonic acid gas), has quite the contrary effect upon the blood, converting its scarlet hue into purple.

Notwithstanding the fluctuating and contradictory accounts of chemical inquirers into the composition of the blood, there appears little reason to doubt the existence of iron in it; and in the red globules in particular the presence of the metal has been detected: through which metallic agency, we may add, it is that oxygen produces the remarkable change above alluded to. For the present, let this much suffice. I shall have occasion to amplify much on this part of my subject when I come to speak of respiration.

SERUM

Is the yellow or straw-coloured fluid which gradually exudes after coagulation from the crassamentum. It has a saline taste, and is adhesive in its nature, on which account it is found somewhat specifically heavier than water.

Superficial observation and analogical inference have given rise to serious error in regard to the proportionate quantities of serum and crassamentum in the blood of the horse. For some hours after a horse's blood is coagulated, it exhibits one uniform gelatinous mass whose surface is scarcely moistened by serous exudation; whereas that of a man in the same interval of time would discover the clot actually swimming in serum. The truth of the matter however, is, that so far from there being a comparatively less quantity of serum in horses' blood, there is actually a *larger* proportion; the difference being that it requires *a much longer time* for its evolution in the graminivorous than in the carnivorous animal.

Take a pint of blood from a man, and place it in a temperature of 50°, and in the course of three days it will not only have per-

fectly resolved itself into its component parts, but will be growing putrid. But draw a pint from a horse, and place it in a medium of the same temperature, and serum will continue to ooze from it even for a week afterwards.

In fact, the two most essential differences between human and horses' blood, are,—1st. That the latter much more slowly resolves itself into its component parts; and, secondly, that it possesses greater preservative powers against putrescency.

Serum itself exposed to the temperature of 160° is converted into a solid, white, opaque mass; also the effect of coagulation. Mineral acids and alcohol will likewise produce this change. It now resembles boiled white of egg; and is found, in fact, to be the same in nature, viz. *albumen*. If the coagulum be cut or squeezed, a limpid fluid issues from it, that has been termed the *serosity*.

"The most important chemical properties of albumen," observes Dr. Bostock, "while in its liquid form, are its solubility in water, and the precipitates which it forms with the mineral acids, tan, and a variety of metallic salts. Of the acids, the muriatic is supposed to combine with it the most readily, and is therefore employed as one of the most delicate tests of its presence in a substance where we expect it to exist. Tan forms with albumen a dense precipitate of tough consistence, and insoluble in water. A variety of the metallic salts precipitate albumen, and, like the acids, serve as very delicate tests of its presence; of these probably the corrosive sublimate, or the bichloride of mercury, is the most delicate, and at the same time the most discriminate, as it appears to have no action upon any other of the animal substances which enter into the composition of the albuminous fluids." When coagulated, albumen becomes completely insoluble in water.

The serosity exists in a comparatively very small quantity, and can only be obtained by dividing the albuminous coagulum and allowing it to drain, or by expression, or by washing it in water. It has been particularly examined by Dr. Bostock, and found to contain an animal matter which is not albumen; and whose nature it is difficult to make out, in consequence of its being always found united with soda, and a variety of other salts, from which it cannot be separated, without being, at the same time, decomposed. To this substance Dr. Marcet has applied the name of muco-extractive matter; while Dr. Bostock prefers styling it the uncoagulable matter of the blood.

BUFFY COAT—CUPPED BLOOD.

I make the consideration of these points a distinct one, because I feel desirous to correct what I conceive to be an important error practitioners have fallen into.

Let the crassamentum be examined at the side, and the upper layer of it will be found to be yellow or buff-coloured; below this, it will appear of a light red hue; lower still, darker and darker until it becomes a black or dark purple. This is the natural or healthy aspect of horses' blood: but, human blood is said never to put on such an appearance but as symptomatic of inflammatory, or, at all events, of increased vascular action. Whether it does or not, the simple explanation of this phenomenon is, that, in consequence of the blood taking an unusually long time to coagulate, the red particles, being specifically heavier than the fluid containing them, gradually subside to the bottom until they are arrested by the process of coagulation. *And consequently, as the horse's blood takes so much longer to coagulate than the human, it cannot afford any matter for surprise that his blood should be always buffy.* Still obvious and easily accountable for as this fact is, buffy blood has been attributed to the horse as a *mark of disease.*

And so, in like manner, has *cupped blood;* by which is meant crassamentum, whose upper surface, instead of being flat or perfectly plane, is concave or *cupped,* having its surrounding margin elevated and more or less inverted, in the form of a tea-saucer. But this is an appearance often to be met with in perfect health: one that no more certainly indicates any morbid condition with which I am acquainted than does buffy blood. I had a remarkable instance of this while engaged in some experiments connected with this subject. A horse, to every appearance in perfect health, was bled to one pound; after which he was galloped (for the space of about twenty minutes) until he sweated profusely: while under extreme agitation from the exertions he had been put to, another pint of blood was drawn by unpinning the same orifice. The coagulum of the first parcel of blood was sizy, tough, contracted, and deeply cupped; that of the last exhibited no signs whatever of buff, was extremely loose and flabby in its texture; so that, on being handled, it readily mingled with the serum, and in a much shorter time than the first went into the putrefactive state.

This latter fact is intimately connected with what we have already advanced regarding the non-coagulation of the blood after an animal has been coursed to death; since, had exertion been continued until the horse sunk under it, the blood would

probably have remained wholly fluid; whereas in this case, the animal being only in progress towards that state—being only urged to a point from which he could recover—the coagulating powers of the blood were merely diminished.

I shall conclude this subject with a statement of the results of bleeding twelve horses in perfect health, under circumstances as nearly as possible similar and natural. From each horse the quantity drawn was one pint. The time it took in flowing in no case exceeded a minute. A film of coagulum was generally perceptible on the surface at the expiration of ten minutes. Each parcel was firmly coagulated in twenty-five minutes. All the coagula shewed buff about half an inch in depth; seven of them were very firm, of which five exhibited the surrounding edge elevated and turned in, the other two being still more decidedly cupped. In two out of the five not so firmly congealed, the coagula were soft and flabby. The serum amounted in every parcel to about *one-half* of the whole quantity.

[To be continued.]

Communications and Cases.

Ars veterinaria post medicinam secunda est.—VEGETIUS.

OBSERVATIONS ON THE APPLICATION OF CHEMISTRY TO PHYSIOLOGY, PATHOLOGY, AND PRACTICE.

By WM. PROUT, M.D., F.R.S.

LECTURE II.

General Sketch of the Mode in which Chemical Philosophy may be applied to illustrate the Operations of the Animal Economy.

Of Saccharine, Oleaginous, and Albuminous Matters, considered as Aliments and Staminal Principles. The question considered, whether Animals can live exclusively on one of these Classes of Aliments.

On the Nature of the Digestive Process; with some Remarks on Cookery.

IN the present lecture it is my intention to give a sketch or outline of the mode in which chemical philosophy *may* be applied to illustrate the general constitution and operations of the animal economy. To these views I was gradually led many years ago;

and the further I proceed, the more I am satisfied that they are founded in truth; and that they will, sooner or later, in some form or other, be established. I purposely avoid details as much as possible, as the consideration of these on the present occasion would be quite out of the question.

I mentioned in my last lecture that, excluding water and adventitious matters, as the earthy basis of bones, &c., the stamina, or ground-work of organized beings may be considered as constituted of three great principles—the *saccharine*, the *oleaginous*, and the *albuminous*. Now, as alimentary substances are derived from the organic kingdom, these, of course, must be similarly constituted; and they may, in fact, be viewed in the same light, or as consisting of the same three great classes of substances. If this view of the subject, therefore, be correct, it matters little under what head we consider these principles—whether, for example, as staminal principles, composing animal bodies, or as the aliments by which animals are supported; but as the latter point of view is in some respects most convenient for our present purpose, I shall consider them in an alimentary point of view. And, first, of the—

1. *Saccharine group.*—When speaking of this group of bodies in our last lecture, it was observed that the radical law pervading them all is, that they are essentially composed of carbon and water, or, in other words, that they may be considered as hydrates of carbon. In the Philosophical Transactions for 1827, an account of the analyses of the principal substances of this class is given, and the following is a very brief abstract of the results:—

This class of bodies, like most others perhaps in nature, is made up of two great series—the crystallized and the merorganized, which, as far as *essential* composition goes, coincide, or run parallel, though their sensible and even their chemical properties are totally different. These differences are supposed to depend chiefly on the presence of minute quantities of foreign bodies termed *merorganizing bodies;* and partly on the different modes in which their particles are aggregated. Thus, the highest and most perfect crystallized sugar coincides with its merorganized parallel, the highest and most perfect form of starch—that, namely, from wheat. The same is true with the other varieties of sugar, which have their corresponding parallels among merorganized bodies, as the low sugar of honey or grapes, with the low form of starch existing in arrow-root, &c.

A second most important body belonging to this group of substances is *vinegar*. Of this, in the crystallizable form, only one variety is known at present—namely, pure acetic acid. But there are probably several merorganized varieties, as the lactic

acid, the zoonic acid, &c., which have been proved to consist essentially of acetic acid, mixed with small portions of foreign bodies.

A third, and most important set of bodies belonging to this group, is *lignin*, or the woody fibre. This at present is only known to exist in the merorganized form, but its crystallized parallel will be probably discovered hereafter. The woody fibre is used as an aliment by many of the lower animals, and it may, by the united agencies of heat and moisture, be converted into a species of the amylaceous principle, highly nutritious.

Another set of bodies belonging to this class is the gummy or *mucilaginous*, of which gum arabic may be considered as an example among merorganized bodies, and sugar of milk among the crystallizable.

If we consider carbon as the measure of the nutritive powers of alimentary bodies in general, which may, perhaps, be fairly done, it may be stated generally that the capacities of the different bodies belonging to the saccharine group, viewed in this light, lie between one-third and a half of their weight.

2. *Of the Oleaginous group.*—I have analysed many specimens of the more important varieties of this group of bodies, and, as formerly stated, have found them all to be essentially composed of olefiant gas and water, in different proportions, or having reference to this composition. These analyses have not yet been published. Oily bodies are naturally separated by their sensible and chemical properties into two great divisions, viz., *fixed* and *volatile* oils. The volatile oils, in general, are not used as aliments; and hence we have little to do with them here, unless, indeed, we except alcohol, which, though conforming in its composition to the fixed oils, more nearly resembles in its properties the volatile ones. We owe much of the information we possess respecting the chemical properties of fixed oils to M. Chevreul; and in procuring the different principles for analysis, I have generally followed his instructions, for which, therefore, I refer to his works. If, as before, we consider carbon as the measure of the nutritive powers of oily bodies, we shall find that they far surpass the saccharine principles in this respect; the carbon of the fixed oleaginous bodies varying from seventy to eighty-one per cent., while alcohol, containing fifty-one per cent., holds a sort of intermediate place between the two classes, or rather commences where the saccharine bodies terminate.

3. *Of the Albuminous group.*—This group of alimentary substances differs from the preceding in containing azote, which renders their analysis so difficult and troublesome, that I cannot yet venture to mention publicly the general law that determines their

composition. The following is a short account of some of the more important varieties of this principle:—

Gelatine and Albumen.—When almost any portion of an animal body, except the oleaginous matters, is boiled in water, it is separated into two portions, one soluble in water, and forming with it a tremulous jelly, or *gelatine;* the other remaining insoluble, or *albumen.* These principles exist in very different proportions in different textures, some of them, as the skin, being almost entirely convertible into gelatine, while others yield comparatively little of it, and consist principally of albumen. Gelatine does not exist in a fluid state in any animal compound, and has been supposed to be a product of boiling; but this is doubtful. One of its most remarkable properties is that of being convertible, by the action of sulphuric acid, into a species of sugar. This is comparatively a recent discovery; but I thought the circumstance so probable, that I attempted the experiment many years ago, when the action of sulphuric acid upon starch was first observed, but, on account of an accidental circumstance, did not at that time succeed. Gelatine may be considered as the lowest kind of albuminous matter existing in animal bodies, and, as it were, of an intermediate nature between the saccharine principle of plants and albumen; indeed, it may be considered as a sort of animal saccharine principle.

Albumen exists in the fluid state in the blood, and in small quantity in certain animal secretions, but it is usually found in by far the greater proportion as a solid, or, as it is termed, coagulated albumen. Fibrin, another modification of the albuminous principle, occurs in the blood in a fluid or at least suspended state, but in its most usual state it exists as a tough fibrous mass, in which form it constitutes, in conjunction with albumen, the basis of the muscular or fleshy parts of animals. It may be also obtained from blood by an easy and well-known process. Neither albumen or fibrin are capable of being converted into saccharine matter by the action of sulphuric acid.

The substance called *gluten*, occurring chiefly in the vegetable kingdom, and particularly in wheat flour, is a modification of the albuminous principle; and according to Berzelius, when submitted to the action of alcohol, is capable of being separated into two principles analogous to the gelatine and albumen of animals.

These three principles—gelatine, albumen, and fibrin—I am disposed to consider as related to one another in the same way that we supposed the different varieties of the saccharine principle to be related, namely, as all of them having the same essential composition, modified by different proportions of water.

Curd, a well-known substance found in the milk of all animals, is another variety of the albuminous principle.

In considering the relative nutritive powers of this class of bodies, it is necessary to take the azote into account; and if we reckon this last as equivalent to carbon, which, for a rough comparison, may perhaps be fairly done, we shall find that albuminous bodies lie, in this respect, between the saccharine and oleaginous groups—that is to say, they contain from sixty-five to eighty-one per cent. of carbon and azote; gelatine containing the least, and curd the greatest proportions of these two elements. The general conclusion from the whole taken together, in a nutritive point of view, is, that substances containing naturally less than thirty, or much more than eighty per cent. of carbon, are not well, if at all, adapted for alimentary purposes.

There is a point of considerable importance connected with this subject, which, before we proceed, may be briefly noticed. We have seen that all the substances used by man as aliments, with the exception of sugar and alcohol, are merorganized bodies. We have also stated that no crystallized, or crystallizable body seems capable of forming a constituent part of a living organized being. The question therefore arises, whether pure sugar, so much used as an aliment, is really not the very worst form in which the saccharine principle can be taken. Alcohol, in its pure state, has been long generally admitted to be its worst form; and I am decidedly of opinion, that in subjects labouring under those forms of dyspepsia connected with deficient merorganizing power, which are by far the most frequent, pure sugar is as difficult to assimilate as pure alcohol, and little less injurious. Indeed, the best argument in favour of this opinion is, that it is actually used in moderate quantity only, and as a condiment, and cannot be taken in the same manner and quantity in which its merorganized parallel, starch, is taken, which, as is well known, constitutes one of the most general and abundant articles of food. So alcohol, as it exists in wine, in a sort of merorganized condition, can, as is well known, be taken in large quantity, and for a great length of time together; while, if so taken in its pure state, it would intoxicate, or lead to disorganization. The same remarks apply to oily bodies, which in their pure state, and especially in their fluid state, are exceedingly difficult of assimilation; but in the state of emulsion, or that mixed state in which they occur in natural fats, or in butter, they are much more easily disposed of, and there are few stomachs that will not bear a small portion of them.

The question next to be considered is, can animals live on one of these classes of alimentary matters exclusively, without partak-

ing of the other two? In reply to this question, it may be observed in the first place, that, in almost every instance, what *animals actually do for the most part*, is to be considered as the rule; while what they *can do on an emergency* is generally an exception. It is one of the grand characteristics of organized beings, and by which they are more than by any thing else distinguished from common crystallized bodies, that they possess the power of varying their habits, and accommodating themselves to circumstances within certain limits, and for a certain time. That many animals, therefore, can for a time live on one of these classes of aliments alone, cannot be doubted; but that they can do so for an unlimited time is exceedingly unlikely, judging from what we actually know by observation to be the case, as well as from experiments made by different physiologists on this particular subject, both of which are decidedly against the supposition, and, indeed, lead to conclusions directly opposite, viz., that a mixture of two at least, if not all three of the classes, are necessary to constitute a perfect alimentary compound.

It is a curious circumstance that *milk*, the only article absolutely prepared and intended by nature as an aliment, is a compound of all the three classes; and almost all the gramineous and herbaceous matters employed as food by the lower animals, contain at least two, if not all the three. The same is true of animal aliments, which consist at least of albumen and oil. In short, it is perhaps impossible to name a substance employed by the more perfect animals as food, that does not essentially constitute a natural compound of at least two, if not all three of these great principles of alimentary principles. But it is in the artificial food of man that we see this great principle of mixture most strongly exemplified. He, dissatisfied with the productions spontaneously furnished by nature, culls from every source; and by the power of his reason, or rather of his instinct, forms, in every possible manner, and under every disguise, the same great alimentary compound. This, after all his cooking and his art, how much soever he may be disinclined to believe it, is the sole object of his labour; and the more nearly his results approach to this, the more nearly they approach perfection. Even in the utmost refinements of his luxury, and in his choicest delicacies, the same great principle is attended to; and his sugar and flour, his eggs and butter, in all their various forms and combinations, are nothing more nor less than disguised imitations of the great alimentary prototype, *milk*, as furnished to him by nature*.

We come now to take a summary view of the important process

* See Blumenbach's Physiology, translated by Dr. Elliotson, page 311 fourth edition.

of digestion, which may be conveniently considered under the three following heads:—first, of the *essential* changes which the alimentary substances undergo; secondly, of the nature of the *merorganization* of the alimentary substances; and, thirdly, of the *reduction* of the alimentary substances or their combination with water, and consequent solution in that flood; all of which constitute so many distinct functions, each liable to its peculiar derangements and mode of treatment.

1. With respect to the essential changes which the alimentary matters undergo, it may be remarked that two of them, the oleaginous and albuminous, are animal products, or parts of other animals, appropriated as articles of food, and hence may be supposed capable of being at once applied to the purposes of the animal economy without undergoing any essential change in their composition. But with the saccharine class, derived principally from the vegetable kingdom, the case is different; and before this can be converted, either into the oleaginous or the albuminous principles, it must undergo some essential change or changes in its composition. These essential changes, I believe, are purely chemical, and the results of obvious and common affinities, and will, I have no doubt, be known hereafter; but as I have not yet quite made up my mind on some points connected with the albuminous principle, I shall not enter further on the subject at present. I may remark, however, that whatever be the nature of the food, the general composition of the chyle is the same, though the proportions of the ingredients are liable to very considerable variations, according to the nature of the food: thus, if considerable quantities of fat be taken, the chyle will be found to abound in fat, &c.

2. *Of the nature of the merorganizing Processes.*—In this part of the inquiry lie the real difficulties we have to contend with, in the operations of life. All the great and essential changes can be traced by care and attention, but here we meet with much which will probably for ever remain unknown to us; and even the little that we do know can scarcely be satisfactorily applied at present. The merorganizing processes may be considered as constituting a sort of underplot, carried on by the organic agent, by which it contrives to influence and direct the operations of the material principles of which living bodies are composed; and though we can see and understand the nature of these principles, and even follow them through many of their metamorphoses, yet we cannot detect the nature of the concealed agencies that govern the whole, or perhaps, at the utmost, catch a glimpse only of a half-concealed clue, the uses and connexions of which are unknown to us, and serve only to puzzle us the more. From

long attention to the subject, I am satisfied that the merorganizing principles are chiefly derived from the living animal itself, at least the more essential ones, and that they are contained in those products of secretion furnished by the stomach and other organs; and this view of the subject accords with what we know of the operations of the animal economy in general. Thus in the incubated egg, I have found that the small quantity of earthy matters occurring in the albumen remains unappropriated at the end of the process, and that the animal has derived the earthy basis of its skeleton from some other and unknown source. The merorganizing principles, therefore, already existing in the aliments, though they undoubtedly render them better adapted to the purposes of the animal economy, are not sufficient; and unless the economy furnishes the materials properly prepared, the future work of assimilation will be imperfect.

3. *Of the reduction of the alimentary substances, or their combination with water and consequent solution.*—Before this important part of the functions of the stomach can be well understood, it becomes necessary to make a few remarks upon the influence of water in modifying the constitution and properties of bodies. It is a general law, pervading all the three great classes of alimentary substances, as well, perhaps, as all others into which water enters as a necessary ingredient, that the greater the proportion of water they hold in combination, the more they approach the state of a fluid—the more prone they are to decomposition; and if soluble in water in any state, the more soluble they are in that fluid. Thus, if we take sugar as an example: the strong crystallized large-grained sugar of the cane contains only about fifty-seven per cent., while the low, weak, and imperfectly crystallized sugar of honey contains as much as sixty-four per cent.; the only difference between the two being in the proportion of water they contain in combination. The same is true of oils. The solid and fixed oily bodies, or stearines, contain less water than the soft and delicate fats and fluid oils; while alcohol, the lowest of the class, contains as much as thirty-nine per cent. of water, and is quite soluble in that fluid. Gelatinous and albuminous bodies also are subject to precisely the same variations. The strong tenacious glue used in the arts is prepared from the firmer portions of the hides of old animals; while the delicate and gelatinous size, or weak glue, is formed from the skins of young or more delicate animals; and the two differ from one another in the proportion in which they hold water in combination; and, generally speaking, the differences between the constituent principles of old and young animals lie chiefly in the proportion of combined water they contain.

Now, in the point of view in which we are at present considering the subject, the digestive process may be supposed to consist in the reduction of the alimentary substances to the lowest possible state (to the state, as it were, of infancy), by combining them with water, by which they are rendered soluble, or nearly so, in that fluid—a fact that must be familiar to every one who has examined the chyle, the characters of which, from the large quantity of combined water present, are so delicate, and so faintly marked, that, though capable of undergoing a species of coagulation, yet this is so imperfect that it is destroyed by the slightest motion, and even by the simple drainage of the watery portions from the more fixed, which are thus reduced to a few delicate fibres.

This combination of the alimentary substances with water, by which at the same time their solution is effected, seems to be chiefly brought about by the agency of a fluid secreted by the stomach itself. The alimentary matter previously divided by mastication, and mixed with the saliva and other fluids, is brought in contact with this secretion, when it soon becomes more or less a fluid. Of this important secretion, chlorine, in some state or other of combination, is an element (apparently a necessary element, for it is always more or less present), and by its powerful agencies contributes mainly to effect this important union. This elementary principle, thus so intimately connected with the reducing process, is, perhaps, one of the most frequent subjects of derangement; and instead of chlorine, or a little free muriatic acid, an immense quantity of free muriatic acid is elicited, which not only proves the source of much secondary uneasiness, but more or less retards the process of reduction itself. The source of this chlorine or muriatic acid, unless we suppose it to be generated, which is an unnecessary hypothesis, must be the common salt existing in the blood, from which the secretion takes place; and it may be asked, what is the nature of the action thus capable of decomposing such a compound? We know of one agent capable of exerting this power, namely, electricity; which agent, in a former lecture, we attempted to shew is employed by the animal economy in its operations, in the same way, and on the same principle, that it employs the materials themselves. To the immediate agency of this principle, therefore, the decomposition may, perhaps, be fairly referred; but the question here arises, what becomes of the soda after the muriatic acid has been separated? This, of course, remains behind in the blood, and a portion of it no doubt goes to keep up that weak alkaline condition essential to the blood as a fluid; but a large proportion of it probably goes to the liver, and is there elicited in combination with the biliary

principles—at least this is the most probable conclusion. We have thus a beautiful provision of nature; for the soda, in the act of being elicited with the bile, is again brought into union with the acid separated in the stomach, where it combines with it, and thus by its agency further decompositions are effected, and the incipient chyle is separated from the excrementitious matters.

Admitting that the above decomposition is effected by the immediate agency of galvanism, we have in the principal digestive organs a sort of galvanic apparatus, of which the mucous membrane of the stomach, and perhaps the intestinal canal generally, may be considered as the acid or positive pole, while the hepatic system may be considered as the alkaline or negative one. Whether this be admitted or not, which is a matter of no great importance, the above may be considered as a simple expression of facts, as far as the saline matters of the blood are concerned; and in conjunction with these, and by the aid of the same energies, there are several other very important processes or changes carried on, some of which I hope hereafter to be able to elucidate.

Before we quit this subject we may make a few remarks on cookery, the object of which is, or ought to be, to facilitate the solution of the alimentary matters, by combining them with water, and thus to aid the stomach in effecting the important process under consideration.

Animals feeding exclusively on vegetables are well known to be furnished by nature with an extensive apparatus of stomachs and other organs, admirably adapted for the purpose of macerating and reducing their refractory food to the purposes of their economy. But man, who is evidently intended to live on vegetable products, in part at least, has not been furnished with this apparatus, and hence we may conclude that the deficiency was intended to be supplied by his ingenuity and the artificial processes of cookery. Now, the different processes of baking, roasting, boiling, &c., are all, as before observed, of a reducing character; and by their united effects the most refractory substances, even the woody fibre itself, may be reduced to the state of a wholesome and nutritious bread. With respect to this subject it may be remarked, in general, that it is infinitely easier to reduce a principle from a high to a low condition, than the reverse. Thus the strongest sugar may be easily made weak, or may even become so by mere keeping; but when once reduced to this state, I believe it never can be restored again, so as to render it well adapted for the purposes of the sugar-boiler. And here it may not, perhaps, be amiss to make a few remarks on what is termed French cookery, in opposition to that generally employed in this country. In France most substances are exposed, through the medium of oil or butter,

to a temperature of at least 600°, by the operation of frying, or some analogous process. They are then introduced into a macerating vessel with a little water, and kept for several hours at a temperature *far below the boiling point*, not perhaps higher than 180°; and by these united processes, properly conducted, the most refractory articles, whether of animal or vegetable origin, are reduced more or less to the state of pulp, and admirably adapted for the further action of the stomach. In this country, on the contrary, articles are usually put at once into a large quantity of water, and submitted without care or attention to the *boiling temperature;* the consequence is, that most animal substances, when taken out, are harder and more indigestible than in the natural state; for it is well known that albuminous matters, as for example the white of an egg, become the harder the longer they are boiled. These observations are often of the utmost importance in a dietetic and medical point of view. When the reducing powers of the stomach are weak, a hard and crude English diet, such, for example, as half-raw beef-steaks, &c., so frequently recommended, is sure to disagree and produce much discomfort, by promoting acidity and all its consequences; while the very same articles well cooked upon French principles, or rather the principles of common sense, can be taken with impunity, and easily assimilated, by the same individual. I need scarcely allude here to the curious fact now well established, and strictly explicable upon well-known principles of the animal economy, that when any indigestible substance is introduced into the stomach, this organ immediately throws out an extra quantity of acid. Of the truth of this I satified myself by experiments on animals many years ago; and the circumstance has since been confirmed by the experiments of Tiedeman and Gmelin, of Heidelburgh. This law explains many of the most troublesome circumstances connected with errors of diet and indigestion.

I need scarcely observe, that I do not approve of *all* French cookery, but only of that rational portion of it by which articles of food are rendered more easy of digestion.

In the above sketch of the nature of the digestive process, I have endeavoured to draw the line of distinction between the difficult or impossible, and what is really within our power; and have only to remark in conclusion, that though these three great essential points in the digestive process are sufficiently distinct from each other, it is not to be understood that they take place in succession, or in the order in which they have been described. The fact is, that they all go on together at the same time; and no sooner does an alimentary substance begin to be dissolved, but its future destination seems to be determined; and if it be expe-

dient that an essential change shall take place, this is accordingly commenced; or if not, the merorganizing process commences even at the outset, and the consequence is, that all the three great constituents are met with in the chyle the moment the extraneous matters are separated by the action of the biliary secretion.

ON THE COLLEGE VETERINARY PHARMACOPŒIA.

To the Editors of "The Veterinarian."

Gentlemen,

Mr. Vines, not in a new edition of his "Treatise on Glanders," but as a bonus to later purchasers (I a little doubt the fairness of this to his subscribers), has given "a copy of the Pharmacopœia in use at the Royal Veterinary College." As it is appended to a work that embodies his opinions on Glanders, I take it for granted that it is his pharmacopœia as well as that of the college. He would not, in the former part of his work, claim our assent to his statements and reasonings, and close by giving us that which he knows we should reject as unchemical and absurd.

Being given us by a "Teacher of Anatomy and Physiology at the Royal Veterinary College," I must receive it as authentic, and I thank Mr. Vines for putting us in possession of (that which must be interesting to every practitioner) the materia medica of the Royal Veterinary School. It is thus become, as all the opinions, and discoveries, and practice of the college should be, our common property, and we have a right to scrutinize its worth, and to adopt or reject it as we think proper.

We shall gradually, I hope, be put in possession of more of the good things of the college, and I am sure the college has many better things to give us than this Pharmacopœia, if the heads of it were so disposed. Yet I fear it will be hope long deferred, and that which will almost make our hearts sick; for common report says, that no little displeasure has been expressed at the escape of this document from among those archives which were never meant to greet the unhallowed eyes of mere pupils and private practitioners. Mr. Behrens is quite in a rage—his very hair stands on end. "I told you," he vociferates, "that these fellows would, by and by, get at 'the secrets of the college, and become more skilful, and thus interfere with the profits of the college.' You remember how I was attacked by those scoundrel editors of The Veterinarian for protesting against this, and for shutting the college doors in their faces, and those of the pack of practitioners. But what is the use of shutting the doors against them, if they, somehow or other, obtain possession of all our in-

valuable discoveries and recipes?" Then, Messrs. Editors, I am told that Professor Vines is to be broken for contumacy. He must never again be hailed as "Teacher of Anatomy and Physiology at the Royal Veterinary College." If not reduced to the very ranks, he is to be degraded to his old situation of "Assistant to the Demonstrator." I am very sorry for that; but, however, in despite of professors, *de facto* and *de jure*, and assistants to professors, and Mr. Behrens and Mr. Sumner too, I have got the College Pharmacopœia, and, i'faith, I will see what it is made of, and get what good I can out of it. Mr. Teacher of Anatomy and Physiology, or Mr. Assistant-Demonstrator Vines, I make you my best bow, and I hope your book will sell the better for the present you have made me and my brethren.

Mr. Vines's Appendix is thus entitled: "A Copy of the Pharmacopœia in Use at the Royal Veterinary College." It is arranged alphabetically.

I was a little startled at seeing at the head of the list "ÆGYPTIACUM." Even White disdains to add it to his farrago of caustics, and escharotics, and detergents, and digestives, and rubefacients. Mr. Blaine, indeed, speaks of *ægyptiacums*, but he very prudently gives us no recipe for their composition. He is almost as fond as White of lugging all manner of things, good, bad, and indifferent, into his materia medica; but he is otherwise a most excellent writer, and one of the best friends the veterinary student ever had. The formula of the college ægyptiacum is as follows:—

Verdigris (subacetate of copper).....	eighteen ounces
Alum in powder	six ounces
Vinegar	twelve ounces
Treacle	ten ounces
Boil gently together, and add	
Sulphuric acid	two ounces and a half.

I will analyse this a little:—Verdigris (subacetate of copper). I will not hypercritically object that the true subacetate of copper is an insoluble salt; that acetate, or bin-acetate of copper, would be a far better term. Acetate of copper is a compound of acetic acid and copper in the proportion of two atoms of the acid to one of the metal. To this is added alum in powder,—sulphate of alumina and of potash, and held together by so strong an affinity as not to be decomposed by the verdigris. It is a mechanical mixture without chemical decomposition. To this is further added twelve ounces of vinegar. The verdigris is already saturated with acetic acid, the alumina is strongly bound to the sulphuric acid, and the vinegar remains free in the mixture. How far the astringent or stimulant effect of each of these substances may be increased by this alliance of the three experience alone can determine. On chemical principles it is hitherto an unobjectionable

application; but, now, these are to be boiled in ten ounces of treacle. The only effect intended to be produced is to combine the whole in the convenient form of a syrup: but care must be taken here; the mixture should scarcely simmer, or the verdigris will be decomposed; and a portion of the copper, if it does not return to its metallic state, will be much less oxidized. A much more chemical way would be, to triturate them well together, and as convenient a syrup would be formed without decomposition; and we should have that which would be manifestly useful in thrush, in canker, and in grease.

To the syrup, however, two ounces and a half of sulphuric acid is to be added; and what is the effect then? The copper, having a far stronger affinity for sulphuric than it has for acetic acid, quits the acetic acid, and unites itself to the sulphuric, and we have a solution, or a syrup of blue vitriol, with a good deal of free acetic acid, and a solution or syrup of alum; and these may constitute a good or a bad application, but which could be made, without all this fuss, by using the sulphate of copper in the first place. Let not another question on chemistry be asked at any examination, until the dispenser has run his pen through this said sulphuric acid: he had better run it through the whole formula. What can be expected from the pupil when the pharmacopœia, or the author of the pharmacopœia, blunders so abominably? Have mercy, good Dr. Babington, on the student, when his masters ought to go to school again!

BALLS.—*Cathartic Mass.*

Cape aloes	eight pounds
Treacle	three pounds
Olive oil	one pound
Soft soap	one pound.

Melt together in a warm bath, and stir until well mixed.—Dose, from one ounce to two.

I confess that I could never bring myself to like Cape aloes. In a public establishment like the Veterinary College, where the horse, under physic, can be exercised as much as the head of the establishment chooses to order, or where, in fact, he can be exercised until the physic does work; or in a cavalry regiment, where there are the same facilities for exercise, Cape aloes may be used; yet even there the Barbadoes are preferable, as more certain, and far less liable to gripe: but in private practice, where grooms will not take too much trouble with their horses, and where the failure of a dose of physic, or griping occasioned by it, would be magnified into an almost unpardonable sin, Cape aloes will not and cannot do. There is not one private practitioner in twenty who uses them. He begins with using them

because he was taught to do so at the college; but he very soon finds out that he is getting himself into sad scrapes, and he has recourse to the Barbadoes; or what make very good balls, and balls that can be depended upon, equal parts of Barbadoes and Cape. There is no reasoning against facts, and the fact is precisely as I state it.

There has been an addition made to this formula since I was at the college; I use the term addition advisedly, because I do not think it an improvement. The soap, borrowed from human medicine, "is supposed to quicken the operation of the aloes, and remove their tendency to irritate the bowels." The aloes can scarcely be administered in a form more soluble than they are here prescribed. The aloes are melted down, they are in a state of extreme comminution, and, mingled with the treacle and the oil, must immediately pass into a fluid state in the warmth and moisture of the intestines. A ball made up with syrup alone might need the soap to hasten its solution; but the oil answers every desired purpose, while the soap being a diuretic, acting on the urinary organs, will divert an extra portion of nervous energy to them, and lessen the effect produced on the bowels. Except in organs between which there is a known sympathy, as the stomach and the skin, and the stomach and the bowels, the effect is most certainly and beneficially produced by confining ourselves to medicines that act on one set alone.

I have always thought that another addition might be made, and which would prove a valuable improvement;—I mean an aromatic in the form of a drachm of ginger or caraway. It would often prevent gripes, and that exhaustion and lasting debility which it is rarely our intention to produce in the horse.

Cordial Mass.

Powdered ginger
Powdered gentian, or liquorice, each equal parts
Treacle sufficient to form a mass.—Dose, from one to two ounces.

There can be no objection to this formula, except the gentian *or* liquorice, as if their properties were the same, and it mattered not which was used. Gentian is one of the most valuable stomachics, as well as tonics, that we have in horse medicine. Liquorice is mere powder of post. Gentian would often be an excellent adjuvant to the cordial ball; liquorice can only be useful to give it the requisite bulk.

Diuretic Mass.

Yellow resin, powdered ..... one pound and a-half
Hard soap ..... one pound
Pulverized nitre ..... one pound
Soft soap enough to form a mass.—Dose, an ounce to an ounce and a half.

This is an alteration, but I think not an improvement of the recipe followed when I was at the college. The diuretic ball was then composed of yellow resin and soft soap—objectionable enough, because it was often difficult to give it the requisite consistence, and because the resin and the soft soap combined together formed still a soap which was decomposed by the weakest acids,—which in every stomach that deviated in the slightest degree from the standard of health would be decomposed, and a caustic alkali liberated, the effect of which might be most injurious. The old ball was objectionable, but here we have the strangest hodge-podge that ever was mingled together, and beating the ægyptiacum out and out. First we have the resin, a very good diuretic, preferable, perhaps, to the common turpentine. Next comes the *hard* soap, used, perhaps, to give consistence to the ball;—the form in which soap should be used, if it is ever used internally; and being a combination of fatty matter and *soda*, united together as powerfully as such bodies can be, yet decomposed by a very weak acid. The hard soap and the resin triturated together form still a soap, but the chemical union is not so strong—the same quantity of alkali combining with a quantity of resin, as well as with the oily matter. Some of the common soaps are formed principally of resin and an alkaline ley.

Next follows the nitre, also a mild diuretic, and a febrifuge or cooling medicine as well. It is that which should not be left out in any diuretic ball if it can be fairly combined with the other ingredients, and which may here be combined without probable decomposition. Last of all comes the soft soap, the union of fatty matter with *potash*, and united to it by a weaker affinity than to the soda. I am far from certain, that in the mere mixture of these there may not be considerable decomposition; that some of the soda or the potash may not be liberated, for the fatty matter of the soap has a stronger affinity for one than the other; and sure I am, that if the slightest acidity be found in the stomach, or, if it were possible, the slightest alkali either, there would be decomposition with a vengeance.

Suppose that, by way of illustration, I wished to try the effect of lime as an escharotic. The farrier is much belied if it be not often his favourite abominable agent in the treatment of cankered feet. For the sake of convenience I mix this lime with soft soap, and what is the consequence? I form a harmless soap of lime, and I liberate the potash, the most horrible of all caustics, and, instead of producing vesication, I literally burn up and destroy the integument. The effect, however, is not produced by the

lime, on whose power I am experimenting. The lime has nothing at all to do with it. Do not let me so far forget my chemistry as to suppose that it can have. It is the potash which does the mischief, and I could have applied it without this troublesome decomposition of the soap. I am not prepared to say that effects like these would often follow, but I can readily conceive states of the digestive canal in which they would follow; and if I have no proof of this being an injurious compound, it is as plain as daylight that it is a disgracefully unchemical one, and should not appear in the pharmacopœia of the acknowledged school of veterinary medicine. My opinion, indeed, is, that these soaps should never be given internally in any considerable quantity, on account of the fact, which a thousand experiments prove, that the weakest acid is capable of combining with its alkaline base, and that there is scarcely an astringent or an alkaline substance which will not more injuriously decompose it. A small portion of aromatic would be no bad addition here, especially in the hardly-worked horse, and in every case, except it is counter-indicated by fever.

Fever Balls (Alterative).

Cape aloes ..... four ounces
Linseed meal ..... twelve ounces
Treacle sufficient to form thirty-two balls.

I am right glad to find, that if the existence of fever is denied in some of the lectures of the college, it is recognized in the pharmacopœia of that institution. I cannot, however, fairly understand what is meant by "*fever (alterative).*" Fever is not usually or successfully attacked by alterative medicine: it requires far more active treatment, or the patient will often be lost.

As an *alterative*, and not given too frequently, and the use of the balls suspended when a purgative effect is produced, and the balls not given at all in pure pneumonia, and most cautiously in cases connected with pneumonia, this formula, prescribing one drachm of aloes, will often be serviceable; but the ball could not be given frequently or long enough in many cases which slowly yield to medicine, as chronic grease, inveterate mange, &c. I should be old-fashioned enough to go back to our too much discarded nitre, and sulphur, and antimony; and although I might work more slowly, it would be a great deal more surely.

Fever Balls (Diuretic).

Yellow resin, powdered ..... half pound
Linseed meal ..... ten ounces
Treacle sufficient to form thirty-two balls.

There is some mystery here too deep for my obtuse faculties. I have had one diuretic ball, although not a very good one, and one that contained a drug that is becoming more and more a favourite with me, and that finds a place in every fever ball of mine--nitre. I thought that I should have nothing more to do, if I retained this ball, than to apportion its size to that of the horse and the nature of the complaint, when I wished to produce a diuretic effect in fever. I look a little lower down, and I see nitre staring me in the face again as a febrifuge, and I well know a good one. Perhaps while I have been finding grievous fault with the chemistry of others, I may be a mere tyro myself. There may be some injurious decomposition effected by the union of the nitre and the resin of which I am ignorant. I am, indeed, ignorant of it; and until I am better taught, I shall beg leave to strike out this "*fever ball (diuretic),*"—a strange description, by the bye—and give, when a diuretic seems to be indicated in febrile cases, a little resin and nitre, but made into a mass with turpentine or treacle, and not with soap; or rather, I should continue the use of the fever ball, which will, generally speaking, render the diuretic unnecessary.

Fever Ball.

Nitrate of potash	one ounce
Camphor and emetic tartar	each two drachms

Make into a ball with treacle.

Two of the ingredients are excellent for the purpose designed. The nitre and the tartarized antimony are old favourites with me; and if, instead of the camphor of very equivocal efficacy, I may be permitted to give white hellebore or digitalis, I cannot have more likely agents to accomplish my purpose. Then, however, I a little demur to the quantity. An ounce of nitre, to be repeated twice or thrice in the day, is an over dose; I have seen nausea to excess, and even inflammation of the intestinal canal, produced by it. Let me alter the ounce to three drachms, and substitute hellebore or digitalis, in doses from half a scruple to a scruple of the former, or one drachm to two of the latter, and I will "applaud" this formula "to the very echo that shall applaud again."

There is one singular circumstance, however, about this *fever ball.* The formula stands in the pharmacopœia, but I do not recollect seeing a single ball of this description given during the whole time that I was at the college. Indeed, I will almost venture to say, that there was not one given. If the case should be altered now, and this very useful compound adopted in the college practice as well as pharmacopœia, I am heartily glad. It may, however, be only the occasional formula of the *sale* fever

ball, for the groom likes camphor, although the veterinary surgeon may not have much faith in it.

Tonic Balls.

Sulphate of iron ..... from one drachm to four
Powdered ginger ..... two drachms
Linseed meal and treacle sufficient to form a ball.

Or,

Sulphate of copper ..... from one to two drachms
Powdered ginger ..... two drachms
Linseed meal and treacle sufficient to form a ball.

I have no objection to these balls. The first I particularly like. I would only plead for an addition to it—two drachms of gentian—an excellent vegetable tonic and bitter, and (an exception to the rule of most vegetable bitters), not decomposing the metallic salt. I am the more anxious for this, because long experience has convinced me that these metallic salts uncombined, I will not say are inert, but rarely accomplish, to the extent I could wish, the purpose I have in view; but when I add to them an adjuvant of similar power, and from a different region of the kingdom of nature; when I add a vegetable tonic to a mineral one, I bestow additional strength and activity on each; and I have no manner of doubt, that if I were driven to adopt the present erroneous practice among some veterinarians, of simplifying medicines so much, I should discard, even for the horse, and most certainly for cattle, my mineral tonics, and retain the vegetable.

The sulphate of copper may be occasionally alternated. It is far inferior to the iron as a general tonic, but much good often results from alternation of medicine. I am especially pleased with the modest dose of the copper here prescribed: *it is the proper dose in every case.* There is not a more erroneous or injurious opinion, than that we can increase the medicinal effect of many a drug by increasing the quantity administered. We may change the character of the effect,—we may do harm instead of good; but there is a quantity, and generally a small one, within which prudence and right experience will limit us. I wish some old staid practitioner would take up this point.

Worm Balls.

Submuriate of mercury (calomel) ..... two ounces
Linseed meal ..... one pound
Treacle sufficient to form a mass: divide into thirty-two balls.

The dose is here half a drachm of calomel. I do not like this ball, and yet I scarcely know what to substitute for it. I have given it without the slightest effect in expelling or destroying

the lumbrici or the ascarides; and I have salivated the horse by continuing its exhibition too long. At all events, I would *correct* it by the addition of an aromatic, as ginger; and I would endeavour to expel it, and the worms too, by a good dose of physic, before I had given too much of it.

I like better Professor Peall's tartarized antimony. Although that has often failed to expel the worm, it never did mischief; on the contrary, if I did not expel the worm, I improved the condition of the horse. He gave two drachms every morning for six or eight days. The treatment of worms, however, is also a subject for some experienced practitioner to take up. I apprehend we are all of us sad blunderers there.

I now, gentlemen, have arrived at a halting place. On a future occasion I will resume my examination of this pharmacopœia by *authority;* but I think I can already venture to predict, that it will not be much longer retained *by our authorities;* or, if it is, it will be no authority at all with any one who is like

Your humble servant,

A Practitioner.

DISEASES OF CATTLE.

[We shall occasionally continue to give extracts from valuable communications received on this important subject, until the substance of the information we have obtained is embodied in the contemplated work to which allusion has before been made; and in which we will not forget the maxim, as binding in literary as other property, "*Suum cuique.*" Indeed, it is most especially binding, when the most valuable of all property, the result of many a year's hard labour and anxious observation is concerned.—Edit.]

Mr. James Sewell, *V.S., Brighton, on some of the Diseases of Cattle.*

Dropping after Calving.—Evident palsy of the hind quarters. The owners appear to be convinced that the animals are irrecoverable; and generally kill them as soon as the disease takes place. In two instances I carefully examined the dead animal, but could not discover any morbid appearance to account for the disease. In a third I found excessive inflammation of the uterus and vagina. Cows that are constantly stalled and confined for milking are most subject to it, which the owners begin to be aware of, and many turn them out into not too luxuriant pasture

one or two months before they calve, which prevents the disease in most instances.

I have attended cows that have taken *chills* when first turned out to grass, after being housed through the winter and spring. They, too, have lost the use of their limbs, and have lain, except when slung, for a fortnight and three weeks before they recovered. By the country people the disease was called *tail-sooken*, and their practice was to put a seton into the lower part or middle of the tail, and to give drenches, of what I know not, and I have my doubts if they did. I found they laboured under great prostration of strength, with constipated bowels and fever. My practice was to give opening medicine, with, in the intervals between the physic, cordials to stimulate the stomach and induce the animal to feed, as there appeared great indifference to take food. Thick gruel was frequently given with the horn, with ginger and anise-seed, &c. combined. From what I have seen in cattle under disease, I think they require and will do better with cordial than the horse, when given in certain and appropriate stages of disease.

I kept them in moderately warm places, and applied sheepskins over their loins. In one or two of the cases I bled where fever ran high; and all recovered: one or two remained lame for some months. Several of them were in calf at the time; calved down, and did well afterwards.

The disease called *Quarter Evil*, I have seen in Somersetshire and Devonshire. The young stock are most subject to it that are feeding in the most luxuriant pastures, and those that are growing and making flesh fastest, so that it suddenly attacks the finest and best first. The grazier discovers the disease by observing the animal a little dull, and upon feeling over the skin finds a crackling under it, as if inflated with air; when this has taken place, I have been told by all experienced breeders that I have conversed with, that they never knew one recover. I examined several that I saw die, and found extravasation of blood into the cellular membrane, and in different parts of the thoracic and abdominal viscera, and, in some, upon the brain.

The mode of treatment to prevent the disease when young stock are growing and thriving unusually fast, is to give a purgative drench and put setons into their dewlaps, and sometimes remove them into short feed. I have seen the *Blane* attack poor milch cows very suddenly. Upon examining the mouth I have found it full of blisters, and the tongue the same, and likewise the rectum, attended with fever, constipated bowels, and great prostration of strength. I believe cattle, generally, under disease lose the power of standing sooner than the horse: sometimes

I have thought there appeared a deficiency of courage and nervous energy in the animal, compared with the horse, and consequent inability to contend with the disease. From what I can see amongst those who profess a great deal of knowledge and skill in the maladies of cattle, there is a great want of systematic arrangement and description of diseases, with their causes and effects. The medical treatment is bad altogether.

The stimulating cordial hodge-podge compounds that are poured down cattle under disease are, in many instances, worse than the disease, and often make the case complicated and dangerous; when a dose of aloes, or Epsom or Glauber salts, given in the first stage of the complaint, would have set all right.

I have frequently seen bullocks at farm-houses (when I have been attending a horse for the owner) that have been a long time ill with diseased liver or constipated bowels, and been under the treatment of what they call a skilful cowleech, who has at length given them up as incurable, and the animal has been, comparatively speaking, wasted to skin and bone. I have, now and then, asked the farmer to allow me to undertake the case.

I have given calomel, aloes, and sulphate of soda.

I have brought the liver into action by repeating my doses at intervals, and keeping the animal upon bran mashes and linseed; and he has recovered, returned to his work, and afterwards grazed and fatted as well as any other beast. Yet those very men for whom I have done those things, when they have fresh cases, send for the cowleech in preference to me.

I recollect one of these skilful cowleeches, who threw down a cow to ascertain where she was lame, when the moment I stood behind her I could see that the tuberosity of the ilium was broken; and yet this man of forty years' practical experience could not see it.

ON SOME DISEASES OF CATTLE.

By Mr. Thomas Browne, *V.S., Hinckley.*

Dropping after calving is very common here, and is considered of late years to have much increased: the cause I think is evident, and the prevention is much easier than the cure. The cow which is getting forward for calving should be kept in a short pasture, and when ready to calve removed to a cool place far from heat and water. Cows in high condition are certainly most liable to this disease; and too high condition is by many well-informed breeders considered to be the only cause. Milking them before calving is another preventive; but as regards the cure, I have not any thing new to offer, practitioners differing in their treatment, and all being equally unsuccessful.

Red Water is not very common here, and I know but one farm in this vicinity that is subject to it. This farm lies in a low damp situation; and I am informed, upon respectable authority, that the farmer always cures it by the administering of brandy. Has brandy the effect of constringing the ruptured vessels of the kidnies?

Sore bags is a very common complaint, for which bleeding, followed by doses of tartar emetic, is resorted to; but I should be glad to be informed of the best mode of treatment for sore bags, and for foul in the foot. I trust some professional brother will take the hint. In acute diarrhœa I have almost always succeeded by housing the animal, giving dry food and astringents.

The *Rot* has been very destructive this season, some farmers having lost almost all their flock. The cause is at present a mystery. I believe the theory of the present Professor of the Veterinary College is, that the ova of the insect are taken into the stomach, and that the existence of moisture is necessary for these insects to live: all I know upon the subject is, that farmers object to place sheep on any land producing rot, until there has been some frost, which favours the theory of the Professor.

Foot Rot has also prevailed much this season: the cause of this disease is the want of paring the feet, and the animal's grazing in long and wet pastures. Butter of antimony is in general use here, and is mostly effective. As to its contagious nature, a great difference of opinion exists, the preponderance of which is in the affirmative: but although I have known it to invade a whole flock on the admission of two diseased sheep, I am still sceptical.

Scab is highly contagious. The practice is to dip the sheep in a weak solution of sublimate, at once getting rid of vermin and disease.

I am sensible that I have offered little that is new on the treatment of the diseases of cattle. This is a part of veterinary practice which has been shamefully despised and neglected; and I am glad to find the profession, at last, awake to an evil which has tended not a little to lower the veterinary practitioner in the estimation of his employer. I trust no opportunity will be lost in diffusing any knowledge that may be acquired amongst practitioners generally on such an important subject.

The most ridiculous and barefaced quackery exists in this county, and will, I fear, continue to do so, in spite of all our efforts, until the farmers are enabled to place more confidence in the regular practitioner; and this must be the work of time. Take one example: An old woman in this neighbourhood, who professes to cure all diseases, was requested, in my absence, to visit a cow with inflammatory fever: she gave her a powder, for

which she modestly charged two shillings and sixpence, and requested that she might have a bottle of human urine every morning: I wonder she did not order a —— to be put in it. The result was as I anticipated: the cow died,—a just retribution for such ignorance and folly. On my remonstrating with the owner for employing such people, I was met with the reply, that her grandfather was a farrier, her father after him, and her brothers, and that she possessed all their receipts. In fact, he considered her knowledge as a sort of heir-loom in the family.

Farmers seem a class of society (I mean the greater part of them) that do not give themselves much trouble in employing their reasoning faculties; education with them seems to be but little estimated, and they are continually exposing themselves to be plundered by unprincipled and disgusting quacks. A farrier, in their estimation, must be a great strong fellow, able to knock a bullock down with his fist; one that can tell a hundred lies at a sitting, drink a bucket full of ale, and smoke a dozen pipes of tobacco. The greater part of the farmers never seem to think that it is a profession which requires either much study or experience; they adhere as strongly to all their ancient prejudices as they did fifty years ago, without for a moment taking into consideration the advancement of veterinary science: even our dress must be in accordance with their ideas; and to succeed in our profession we are almost compelled to become the associate of grooms and stable boys. To convince such men of their errors is a task of no ordinary nature: the attempt is generally unsuccessful; it only adds to our enemies, and causes us to be designated as fools and madmen.The picture is a gloomy one, but it is not overdrawn. It is time for us all to unite, heart and hand, in vindicating the character of our profession; and that can only be done by cultivating a species of knowledge which we have not hitherto been supposed to possess, and to which, in plain fact, we have not had a shadow of pretension. Sterling science will eventually triumph, *whatever may be our present* state of discouragement and debasement.

I should like to see the subject of Veterinary Jurisprudence considered in your Journal.

A CASE OF TWIN FOALS.

By Mr. E. Battersbee, *V.S., Croydon.*

To the Editors of "The Veterinarian."

Gentlemen,

A series of interesting papers having been written by Mr. Karkeek, on Breeding, and conveyed to the public through the

medium of THE VETERINARIAN, wherein the unusual circumstance of a mare producing twins is adverted to, also a notion entertained that they are never brought forth alive, I am, in consequence, induced to communicate a circumstance which occurred a short distance from this town, where they were not only brought forth alive, but are at this moment in perfect health, and of the age of two years, one a colt and the other a filly (both bays): the colt is rather coarsely formed, but the filly is very neat, and of the ordinary size of two-year old colts.

The sire of them is Strathperne, a thorough-bred bay horse, out of a large-sized, roomy, bay coach mare, twelve years old, and about fifteen hands three inches and a half high. I believe she is now at work on the Brixton road, in one of the vans which convey prisoners from the police office of the metropolis to the tread-mill.

The owner of the twins informs me, that for the first three months as much time and attention was bestowed in rearing them as a young child would require.

While in the act of writing this letter, I am informed that several instances of the kind have occurred within the vicinity of this place, but they have not come under my observation.

I remain,

Yours respectfully,

E. BATTERSBEE, V.S.

FOREIGN VETERINARY SCHOOLS.—No. III.

THE NETHERLANDS.

[Continued from p. 434.]

Winter Course of Lectures, extending from October 1 *to March* 1; *Summer, from April* 1 *to July* 31.

FIRST YEAR.—Summer Course.

		Monday	Tuesday	Wed.	Thur.	Friday	Satur.
Botany	7	—	—		—	—	
Zoology, & the breed-of cattle	7			—			—
Physiology	10		—	—		—	—
Chemistry	12	—	—		—	—	

Winter Course.

		Monday	Tues.	Wed.	Thur.	Friday	Satur.
Physiology	10		—	—		—	—
Anatomy	11	—		—		—	
Zoology, & the breeding of cattle . . .	11		—		—		—
Chemistry	12	—	—		—	—	
Demonstrations . . .	2	—	—	—	—	—	—

Second Year.—Summer Course.

		Monday	Tues.	Wed.	Thur.	Friday	Satur.
Botany	7	—	—		—	—	
Zoology, & the breeding of cattle . . .	7			—			—
Pathology	8	—		—		—	
Principles of Medicine .	10	—			—		
Physiology	10		—	—		—	—
Chemistry	12	—	—		—	—	
Shoeing	2 3	—	—	—	—	—	—
Materia Medica, and Pharmacy	4	—			—	—	

Winter Course.

		Monday	Tues.	Wed.	Thur.	Friday	Satur.
Pathology	8	—		—		—	
Physiology	10		—	—		—	—
Anatomy	11	—		—		—	
Zoology, & the breeding of cattle . . .	11		—		—		—
Chemistry	12	—	—		—	—	
Demonstrations . . .	2	—	—	—	—	—	—
Materia Medica, and Pharmacy	4	—			—		

Third Year.—Summer Course.

		Monday	Tues.	Wed.	Thur.	Friday	Satur.
Pathology	8	—		—			
Therapeutics	8		—		—		—
Practice of Veterinary Surgery	9	—	—	—	—	—	—
Principles of Medicine .	10	—			—		
Surgery	11	—		—			
Parturition	11		—		—		—
Shoeing	2 3	—	—	—	—	—	—
Materia Medica, and Pharmacy	4	—			—		

Winter Course.

		Monday	Tues.	Wed.	Thur.	Friday	Satur.
Pathology	8	—		—		—	
Therapeutics	8		—		—		—
Practice of Veterinary Surgery	9	—	—	—	—	—	—
Veterinary Jurisprudence	10	—			—		
Anatomy	11	—		—		—	
Demonstrations . . .	2	—	—	—	—	—	—
Materia Medica, and Pharmacy . . .	4	—			—		

Fourth Year.—Summer Course.

		Monday	Tues.	Wed.	Thur.	Friday	Satur.
Pathology	8	—		—		—	
Therapeutics	8		—		—		—
Practical Veterinary Surgery	9	—	—	—	—	—	—
Surgery	11	—		—		—	
Parturition	11		—		—		—
Shoeing	2 3	—	—	—	—	—	—

Winter Course.

		Monday	Tues.	Wed.	Thur.	Friday	Satur.
Therapeutics	8		—		—		—
Practical Veterinary Surgery	9	—	—	—	—	—	—
Veterinary Jurisprudence	10	—			—		
Anatomy	11	—		—		—	

NEGLECT OF THE BOARD OF VETERINARY EXAMINERS.

To the Editors of "The Veterinarian."

Gentlemen,

I am sure that you, who have always been the students' friend, will insert the following case of peculiar hardship:—

There had taken place but one examination of pupils in July this year, but there were five young men waiting for their examination, and not unwilling a little to postpone it, that they might become better prepared for it; and to whom Professor Coleman had promised that they should be examined before the lectures closed. The destination of one was in a distant part of the world; another had been previously rejected, and when he applied to be re-examined in July it was refused, because the three months

which were required to elapse between the examinations had not expired by a fortnight; but the refusal was softened by the hint, that there would be another examination in August; and others came from a very considerable distance, not less than two hundred miles.

They were all fagging hard—they had feed the grinder—and they had neglected almost every thing else in order to devote themselves exclusively to the peculiar preparation for an examination. August, however, passed on, and they were anxiously awaiting their summons; but respect for their professors kept them from making any formal inquiry or complaints. At length, the last week in August, and the last week of Mr. Coleman's lectures, arrived, and they then ventured to ask when the examination would be? To their utter astonishment, Mr. Coleman replied, that "there would be no examination at all, because most of the examiners were out of town."

I will not inquire who was in fault—whether Mr. Coleman, for making a promise which he knew would not be kept, or which he took no means to have kept; or the examiners, who, with the knowledge of the examination went out of town on their pleasure, disdaining to think of the disappointment and inconvenience of the students.

Three months must now pass before another examination can take place; and these young men must either be kept in town at a very heavy expense, and which they can ill afford, and to the neglect of their interests at home; or if they go home, they must take long journies up again: they must again go over all their preparation; they must feel again all their anxiety; and as to the one who ought soon to commence his journey of six thousand miles, whose friends and whose business are expecting him, I do not know what is to become of him.

I say again, I do not know who is in fault; but a pledge has been broken, and under circumstances which ought to have rendered it sacred. There has, at least, been negligence; and with that has mingled too much carelessness of the situation and interests of the pupils. I do not, however, wish to use harsh language; but if you will give this short statement a place in your impartial Journal, you will probably prevent a repetition of such injustice.

I am, gentlemen, very respectfully yours,
A STUDENT.

24th Aug. 1831.

THE VETERINARIAN, SEPTEMBER 1, 1831.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

THE legal responsibility of the practitioner, medical or veterinary, is a painful subject, and a very perplexing one in some of its bearings. It cannot be denied that there is, to all intents and purposes, a legal binding contract between the veterinary surgeon and his employer. The surgeon offers for sale his skill and attention at a certain price; and if the other binds himself by the act of employment to give that price, he has a right to claim the valuable commodity for which he bargained.

The veterinary surgeon, by proclaiming himself a member of the profession, asserts that he has the general and ordinary knowledge of that profession. It is on the faith of that implied assertion that he is employed; it is that assertion which induces confidence in his employer and the public; and if he were not compelled to exercise that knowledge, there would be an end to all confidence in such transactions. The living of the surgeon depends on the existence of this confidence, and so does the property of the public on the manner in which that confidence is respected. Therefore it must be true, as a simple proposition, that "every veterinary surgeon is liable to make compensation in pecuniary damages to any person who may entrust him with a patient, for any injury that may arise, either through his want of skill or want of attention."

It may, however, admit of doubt, how far the low and ignorant pretender may be liable. Now that there are spreading through the country a class of men who have prepared themselves for the practice of their profession by a regular and expensive course of study, it may be doubted whether the untaught cowleech or blacksmith is liable to action; for common sense might have told the employer, that he did not and could not possess the requisite skill. Sadi relates in his Gulistan, and Puffendorf cites it with approbation, that a man who had a disorder in his eyes called on a farrier for a remedy, and he applied to them a medicine commonly used for his patients. The man lost his sight, and brought an

action for damages; but the judge said, "no action lies, for if the complainant had not himself been an ass he would not have employed a farrier." So, as few but asses will, ere long, employ those who have neither the opportunity nor the desire to obtain a competent knowledge of the principles of the veterinary profession, there will be no redress for him who has not been deluded by any one but himself. The noisy pretensions of these ignoramuses will not be sufficient ground of action, for he must have been sadly careless or inconsiderate who gave the slightest credence to them.

The professed veterinary surgeon, however, stands pledged to display skill and attention in the practice of his calling. Yet this requires explanation. There is no necessity that he should possess, or shew that he possesses, any extraordinary degree of medical talent. It is not necessary that he should be free from error in his opinion of disease, or his practice on it. He may even mistake tetanus, in its early stage, for an injury of the back: all that is required is a general and ordinary knowledge of the profession to which he states himself to belong. Nor does the "want of attention" (another supposed ground of action) imply that he is always to be careful over one patient to the exclusion of others—or that he should be always in attention, to the sacrifice of his personal convenience and rest—or that he should have been aware of changes that unexpectedly happened while he was away, and which required immediate assistance or change of treatment. The attention demanded is that only which any man of ordinary industry might be expected to shew.

The law of responsibility is, on the whole, that which no honest and tolerably competent practitioner will have to dread. He who cannot exhibit disgraceful ignorance, and who will not shew unfeeling negligence, has no cause to fear. The good sense of the jury will, likewise, always lean towards the fair and honourable practitioner; nor need we fear that the peculiar disadvantages under which we labour will be forgotten.

The veterinary surgeon, however, has not the chance of the human practitioner. His patients are dumb. They cannot tell the seat, or the degree, or the kind of pain. He has to find out all these things for himself by a closeness of observation, com-

pared with which, the anxious enquiries and reasonings of the human surgeon are the triflings of a child. Beside this, a thousand times more exposed to error than the human practitioner, every mistake is detected by close *post-mortem* examination. The grave covers not his blunders. If these are disadvantages, and often sad annoyances, they are, likewise, stimuli to diligence and care; and they are more than this,—the painful feeling accompanying them once being subdued, there results a buoyancy of mind, an indifference almost stoical, no, not to the sufferings of the patient or the interests of the employer, but to the hasty decision and unjust censure of the owner of the animal or the public.

Some have spoken of the recklessness of the lower classes of practitioners among us—now and then disgracefully expressed—the abuse of that independence of spirit, that elastic resistance of mind, which the circumstances in which we are placed naturally beget. It is, however, only an abuse of a proper feeling: he who is careless of consequences, as they regard either his patient or his employer, is a disgrace to us; but he who shews a timid subserviency to the prejudices or the censures of his employers, is an enemy to himself and to us. We must re-act against the power that is pressing upon us, or we shall never gain our proper rank in society or in public estimation; but, on the contrary, encourage oppression, and materially suffer in reputation and in pocket, when we little deserve it.

Let us suppose a few cases. After a severe blister our assistant may have neglected the cradle, and the animal has blemished and maimed himself for life: we may have sent a strong and somewhat caustic drink, and our apprentice, playing all manner of monkey tricks, has poured a portion of it into the trachea and destroyed the horse. Engaged in one direction, our assistant may have been despatched another way; but he became intoxicated on the road, and reached not the place of his destination, and the animal died for lack of assistance. These are awkward circumstances, under which it may be prudent to make the best of a bad matter, and hush the affair up as quickly as possible. But in the fair treatment of disease, he who submits to be amerced, or cowers under the threat of legal proceedings, even al-

though he may seem to have done what the best human practitioner, with more numerous and better guides, often does—although he may have mistaken the nature of the disease, and pursued a course of treatment which the result did not bear out,—does injustice to himself and his brethren. He has thrown himself into the case; he has exerted not merely ordinary care, but all the anxious attention of which he was capable, and although he has failed here, he has many another case of successful treatment to adduce, and some years, perchance, of well-deserved reputation. He is neither legally nor morally responsible. He has exhibited that general knowledge of his profession which offered a reasonable guarantee for the health of a valuable animal being confided to his care; and one error, and even many more than one error in opinion as to the disease or the mode of treatment adopted, will make no difference in the business. He may, he will feel keenly enough the loss of the animal and the disappointment of the proprietor; but if he did give due, and constant, and anxious attention to the case, he will have a straightforward and an honest story to tell, which will not be quite unsatisfactory to his employer or the public; and if he yields to intimidation, and suffers himself to be imposed upon, we say again, he does injustice to himself and his brethren.

We will venture even farther than this: we will suppose that, with a general knowledge of his profession, he has somehow or other betrayed a total want of professional skill and knowledge in the treatment of some particular case, or the performance of some particular operation. We tell him unhesitatingly that he is not here legally responsible; that the law does not require extreme skill in every minute division of practice. It does not require that which was never found. All have their points of excellence, and all are sometimes sad blunderers. The law is satisfied with that *general knowledge which shall be a reasonable guarantee for confidence.* He is not here *legally* responsible, and he may set his angry accuser or employer at defiance. How far he is *morally* responsible, is a question for his own conscience to decide: many a circumstance must be weighed to come to a determination here, and the honourable practitioner will not be found wanting.

This question of responsibility is a very interesting one. We should be glad on this, as on several other topics at which we have lately glanced, to elicit the opinion of some of our able Correspondents. We have those in our mind's eye who could throw a good deal of light upon it, and who, always actuated by honourable feeling, would place it in the proper point of view.

Alluding to Correspondents, we may, perhaps, be permitted to observe, that we have heard of strange complaints,—that we exact from our friends the postage of those communications by which our periodical is fed, and which (and we gratefully acknowledge it) constitutes its chiefest worth.

Why! we do as all our brother-journalists do; and what we must do to a certain extent, or we should be inundated with letters which we should not have time to read, and the expense of which would far exceed our little profits.

We had heard this complaint whispered here and there, and we took no little trouble to trace it to its source. And to whom, reader, do you think we traced it? why, to those who have never written to us at all; andthat for two good and sufficient reasons,—in the first place they could not, and in the next place they dared not.

But, however, we are truly grateful to our Correspondents. Our covers contain a list of them of whom we may well be proud; and, sometimes, if we must confess the truth, our consciences have given us a twinge or two. While we exultingly snatched the communications of our friends Castley and Karkeek from the servant, we have thought that it was a shame to make such good fellows pay so much: not that they regarded it—we know them too well for that.

Indolence, procrastination, pressure of business, and various other things, have prevented us from saying what we have long intended to have said on this subject. We cannot admit every one to tax us at his pleasure; but when a letter with the acknowledged signature of a Correspondent has once appeared in our pages, on a subject of science or practice, he may take it for granted that we attach some value to his communications, and that we shall be happy to hear from him again without taxing

himself with the postage. He will, however, please to recollect, that the largest folio sheet, if it does not weigh an ounce, is only charged single, and that an envelope doubles the postage; and sometimes, by making the weight to exceed an ounce, quadruples it. We had more than 10s. one morning, *unnecessarily*, to pay on account of our Correspondents on the Breeds and Diseases of Cattle, from their having forgotten these trifling circumstances.

Review.

Quid sit pulchrum, quid turpe, quid utile, quid non.—Hor.

The Village Farrier; a plain and familiar Treatise on the various Disorders incident to the Horse, exhibiting their Causes, Symptoms, &c. and pointing out the most approved Remedies: also, Instructions for Preserving the Health of that useful Animal; with numerous valuable Recipes. By Ephraim Blaine, *upwards of Thirty Years a Veterinary Surgeon.* Tegg, Cheapside.

We have made most diligent inquiry among our friends, and cannot obtain the slightest trace of this "Mr. *Ephraim* Blaine, upwards of thirty years a veterinary surgeon." Medical writers, whether veterinary or human, usually give us some clue whereby we may trace the "local habitation" as well as the "name;" and we are thus frequently enabled either to form to ourselves some notion of the probable value of the work, and, possibly, save a great deal of that time which we can ill afford to throw away; or, at least, we shall know where our gratitude is due, and to whom among our brethren we may apply, or may direct others to apply, for important information on some interesting points of theory and practice. The reputation of the writer, and a remuneration more solid but not more valuable, demand that we should know who he is, and where he is to be found. But of Mr. *Ephraim* Blaine we can learn nothing at all. He is either a most disinterested gentleman, who labours for the promotion of the art, and not for fame, or he is an unsubstantial, ideal personage, inhabiting probably some story next the sky; impudent enough to assume the surname of one who has done our profession much service, but not so endowed with necromantic art as to put on a shape sufficiently questionable to deceive us for a moment.

Delabere Blaine, the author of "*The Veterinary Outlines,*" is a man of education, science, and extensive practice. He was for many a year the best writer on the veterinary art ; and even now he may "divide the crown" with the choicest of this more enlightened period of veterinary science. He was a horseman as well as a surgeon : he knew every *point* about the horse, as well as his mere anatomical structure,—every good and bad quality, as well as every disease :—but *Ephraim* Blaine !—let him speak for himself.

In page 2 he is speaking of fever; "there is much resemblance in the symptoms of fever to those of staggers ; the horse is senseless and stupid ; voids his dung and urine without power to retain them ; ranges the stable ; bruises himself dreadfully." Then, "as soon as the disease shews itself, bleed freely, *two or three quarts* (!) at least, must be taken away." Afterwards, "give antimonial powder, tartar emetic, camphor, nitre, Castile soap, Barbadoes aloes, syrup of buckthorn, Epsom salts, coarse sugar, and castor-oil ;" but, "when it is necessary to use a stronger medicine, give James's powder, assafœtida, camphor, and opium : James's powder is, in fact, the very best sweating medicine we have ;" and "when he is getting better, give Peruvian bark, gentian, nitre, and *spirit of vitriol*" (!!) Did Mr. *Ephraim* Blaine, in his whole thirty years' practice, ever see or treat a case of fever? or, if he did, was he ever permitted to treat a second ?

Physicking is a simple thing enough, and a very good thing in some cases of disease, and in sudden and considerable change of diet. Let us hear Mr. *Ephraim* Blaine : "Those horses that are fed very high, and upon dry food, require to be purged periodically, say two or three times a year. Two or three doses at each time will be sufficient, allowing a proper elapse between each" (p. 5). That is to say, a well-fed horse must be three months out of the twelve under physic. Very pleasing intelligence this to the owner of the horse, although somewhat profitable, we own, for the farrier and the druggist. We know a great many horses highly fed, and proportionably worked, who are rarely "sick or sorry," and scarcely require a dose of physic in half a dozen years. But physic is useful occasionally, and "some horses, after long journeys, are liable to lose their appetite, and their stomachs are clogged with crude and indigestible matter. This must be removed ; for, if permitted to remain, it will be productive of dreadful effects" (p. 5). Surely there are better restoratives for an over-worked horse than a dose of physic.

With all this physicking the horse must sometimes sadly suffer ; and so it is acknowledged that he does. "The horse is

liable to swell if physicked without being prepared; this is dangerous, and requires a diuretic drink, as follows:—

" Take yellow resin	two ounces(!)
Prepared kali	half an ounce
Oil of junipers	three drachms
Caraway seeds and ginger-powder, of each	one ounce (!)
Mix, and give in a pint and a half of warm gruel."	

A pretty tolerable dose, we think, both of the diuretic and the spice. In many instances, we should imagine, that the horse would never " swell" again.

In page 19 we were a little puzzled. When a horse is recovering from inflammation of the lungs, we are told to give him caraway-seeds, anise-seeds, liquorice-powder, and *squires* in powder. The only interpretation we can give of which is, that, in the estimation even of this writer, every Esquire who will use this precious farrago of drugs deserves to be brayed in a mortar, and the powder given to the poor beast he would torment and poison.

In page 40 we have a ball recommended for surfeit and mange, to be given every day, or every second day, containing, with various other ingredients, more than two drachms of socotrine aloes, and *more than half a drachm of Spanish flies*. For canker in the foot we have as dangerous a course recommended:—One drachm of calomel, and *a scruple of red nitrate of quicksilver* (a precious compound), with a little ginger, are to be given every third day, and worked off on the following morning with a common purging ball. A common purging ball every third day, and the red precipitate and the calomel on one of the intermediate days. Verily, the horse that could survive this deserves to live for ever.

In farcy we are to begin with a scruple of corrosive sublimate, and increase the dose to two scruples daily.

Really, Mr. *Ephraim* Blaine, " this is too bad." You may write as much nonsense as you please, but you have not yet been licensed to murder the best horses in his Majesty's dominions.

On the subject of botts, Mr. Bracy Clark is fairly beaten out of the field, both as it regards the origin and the effect of the bott. The *œstrus equi* has nothing to do with it;—no: but " botts make their appearance in the months of May, June, or July, and this has been attributed to the green and juicy food on which they feed at these times, as well as to the frequent scarcity of water, and irritation produced by the great increase of temperature." " In addition to these causes, horses are frequently attacked by being suffered to drink of water remaining in ponds nearly dried by the heat of the sun, mudded by frequent visits of cattle, and

swarming with myriads of insects and other animalculæ. To this cause, principally, we attribute the fact, that, in low countries abounding with fens and marshes, hundreds of valuable animals are annually destroyed, whose stomachs and intestines, when examined, are filled with botts."

By this time our readers are, like ourselves, perfectly disgusted with such a barefaced fraud on the poor village farrier and the public. It is really scandalous, that, when we have long been struggling, and latterly with success, to vindicate the claims of our profession to the consideration of our medical brethren and of well-educated men, publications like those of John Hinds and *Ephraim* Blaine, one impudently entitled "THE Veterinary Surgeon"—the type, the *beau ideal* of what we ought to be,—and the other pretended to be written by a veterinary surgeon of thirty years' standing, should (if they could for a moment be considered to be ours, and on some these titles will impose) throw us more than a century back. In the name of our indignant profession we do protest against these worse than ignorant, these mischievous and murderous works; and we protest against the assumption of names that do not exist, and the forgery of others we have long been taught to value. John Hinds and *Ephraim* Blaine belong to other schools. They proceeded not from us, and they are not of us. We would put it as a matter of consideration to certain publishers,—a matter of calculation and of money,—whether they can, in the long run, hope to be popular in our rapidly increasing profession, and that their books will sell among us; or, rather, whether a brand will not be set upon them, when they are thus stabbing at our reputation and our honour.

Sporting Jurisprudence.

THE GUY STAKES.

WOOD, BART. *v.* ATKINS.

THIS cause excited considerable interest in the sporting world. It was an action brought at the Warwick Assizes, on Monday the 8th of August, by Sir Mark Wood against Mr. Atkins, the clerk of the course for the Warwick races, to recover the sum of 600*l*., the amount of the Guy Stakes, run for at these races last year. The Duke of Richmond, who was subpœnaed as a witness, was on the bench. Other members of the Jockey Club were also present.

Mr. Serjeant Goulburn, on opening the plaintiff's case to the jury, stated, that the real defendant in the action was Mr. Beardsworth, of Birmingham, who, as well as the plaintiff, was well known on the turf. These gentlemen were the respective owners of the two horses that had come in first and second in the race for the Guy Stakes run at Warwick, on the 7th of September, 1830. There were thirty-one subscribers to these stakes, of fifty guineas each, several of whom, as usual, became defaulters, and paid forfeit. Nine horses ran; and the produce of the subscriptions and forfeits amounted to nearly £1,000, and had been paid to the defendant Atkins, whose duty it was, as clerk of the course, to receive the subscriptions, and hand them over to the person whose horse was declared by the stewards to be the winner. Mr. Beardsworth's horse (Birmingham) came in first; and Sir Mark Wood's horse (Cetus) came in second; but the latter was declared entitled to the stakes under the circumstances about to be stated, according to the rules by which such matters were governed, and so declared by the stewards of the Jockey Club, to whom the case had been referred. A decision so pronounced, by a tribunal the most competent in such matters, after an agreement to refer the question to that tribunal, was, the learned Serjeant contended, final and conclusive between these parties; and he therefore apprehended that they were precluded from going into the orginal merits of the question, although, if they did, the plaintiff would be shown to be entitled on the merits, as well as by the decision already pronounced in his favour, to the amount of the stakes in question. The learned Serjeant here referred to a case reported in the volume of the Racing Calendar for 1810, in which the court held a decision of the Jockey Club on a question of this kind binding. [The reference to the Racing Calendar, as an authority for a legal decision, excited some pleasantry in court, which was increased by the learned Judge pointing out in the list of subscribers to that volume the name of Sir James Mansfield, the then Lord Chief Justice of the Court of Common Pleas]. The learned Serjeant was happy to see, although he had merely quoted from this book as an authority amongst sporting gentlemen, that it was one of a high legal character also, as it had come forth with the sanction of no less a personage than the Lord Chief Justice of the Common Pleas [laughter]. The horses which were to run for the Guy Stakes of 1830, were the produce of mares covered in 1826, to be named by the owners. They were hence called "Produce Stakes." Mr. Mytton, a gentleman not unknown in sporting circles, named the mare Miss Craigie, of which the horse Birmingham was the produce, by Whalebone; Mr. Gantlet named the mare Lamia, of which the horse Cetus was the

produce, by Filho da Puta. It was unnecessary to mention the names of the other horses that had run, these being the two that had come in first and second. There was no dispute as to the fairness of the race; but it was a rule laid down by the Jockey Club, and well known on the turf, that no person who is in arrear for subscriptions or forfeits be allowed to start a horse until he has paid up; and that if the horse of such person were to start and win the race, he would not be entitled to the stakes, which would in such case go to the owner of the horse coming in next after him. The objection against Mr. Beardsworth in the present instance was, that Mr. Mytton, in whose name Birmingham had been entered for the race, was in arrear at the time for stakes and forfeits, both at Warwick and at Winchester; and consequently Sir Mark Wood, who had become the owner of Cetus, the horse that came in second, claimed the stakes from the clerk of the course, who, of course, refused to give them up to either party until the question was decided. The parties referred the matter to the stewards, with power to choose a third party as umpire. These gentlemen, namely, Mr. Lucy, the present High Sheriff of this county (then acting as steward for Mr. C. Wise, who was at Hastings), and Mr. Gifford, not feeling themselves competent to decide upon the point, referred it, with the consent of the parties, to the stewards of the Jockey Club at Newmarket. Written statements of their respective claims were required from Sir Mark and Mr. Beardsworth, which were accordingly sent in, and these statements were transmitted by Mr. Lucy and Mr. Gifford to the stewards of the Jockey Club, two of whom, the Duke of Richmond and Mr. C. Wilson, met at Newmarket in October, and chose Mr. Irby, a member of the Jockey Cub, to supply the place of Lord Verulam, the third steward, who was absent. After having considered the statements sent in on both sides, these three gentlemen decided that Sir Mark Wood was entitled to the stakes, and forwarded their decision in writing to the clerk of the course. Mr. Beardsworth, nevertheless, persisted in his claim, and the defendant consequently refusing to pay over the money, he being no doubt indemnified by Mr. Beardsworth, the present action was brought to recover the amount in his hands.

The facts, as detailed in the learned Serjeant's statement, were then proved by the evidence of the jockey who rode Cetus; the editor of the Racing Calendar; Mr. Lucy, the acting steward of the Warwick races in 1830; the secretary to the stewards of the Jockey Club; and his Grace the Duke of Richmond, one of the referees. The latter stated that Mr. Wilson, Mr. Irby, and himself, took the written statements of the respective parties into

their consideration about the 11th or 12th of October last, at the house of their secretary, at Newmarket, and made the award which had been mentioned. The fact of the horse or owner being in arrear at Warwick disqualified him from running on that course, but he did not think that his being in arrear at any other course would disqualify him here.

Mr. Clarke, in his address to the jury on the part of the defendant, contended that they had nothing to do with the rules or decision of the Jockey Club. Neither Mr. Beardsworth nor Mr. Mytton was a member of that club; and, consequently, they were not bound by its rules. 'Why should the rules of that club be allowed to govern all the races of this country, and supersede both the established law of the land, and the law of common sense? It was not denied that Birmingham, Mr. Beardsworth horse, came in first, and had therefore won the race. There was no complaint of any unfairness on Mr. Beardsworth's part; and why then take the stakes from him and give them to the owner of a beaten horse? The Jury were bound to attend to the merits of the case, and not trouble their heads about any absurd regulations of the Jockey Club, upon plea of which it was attempted to deprive this gentleman of the prize he had fairly won. All the parties were on the course on the day of the race, and why did not Sir Mark Wood make his objection, if he thought it a valid one, before the horses started? If not a valid, it would then at least have been a fair one, and Mr. Beardsworth would not have had so much reason to complain of it. But Sir Mark Wood, although he saw both Mr. Mytton and Mr. Beardsworth on the course, thought proper to lie by and take his chance of winning, in fraud of the other subscribers, if the objection was a good one; and then finding his own horse second, he came forward with his objection, and claimed the stakes. With respect to what had been called the award of the stewards of the Jockey Club, that was no award at all; nor anything in the form of an award. But Mr. Beardsworth never submitted his case to the Jockey Club: he merely submitted it to the stewards of the Warwick races, who, although they admitted that his horse had come in first, without any unfairness, yet declined to decide the question, but sent it to the gentlemen of the Jockey Club. Mr. Beardsworth, however, dissented from this, and actually wrote to Mr. Gifford to that effect. The learned Counsel, therefore, submitted, that any authority he might be supposed to have given to submit the case to the club had been revoked; and that, not being a member of that club, and his horse having fairly won the race, he was clearly entitled to the stakes, notwithstanding any rules by which that society might be themselves guided.

Evidence was then called on behalf of the defendant; but the only important point proved was, that Mr. Gifford had received a letter from Mr. Beardsworth, in October last, in which he told him he might do as he liked; but that he (Mr. Beardsworth) did not wish to submit his case to the stewards of the Jockey Club.

Mr. Serjeant Goulburn having replied,

The Lord Chief Justice informed the jury, that the questions for their consideration were, whether or not the parties had submitted their case to the decision of the stewards of the Jockey Club, and whether that decision had been pronounced. With respect to the letter proved to have been written to Mr. Gifford by Mr. Beardsworth, his Lordship was of opinion that the terms of it did not amount to a revocation of the submission.

The jury, after having retired for some time, returned with a verdict for the plaintiff—Damages £600.

Extracts from Journals, Foreign and Domestic.

On the Urine of a Horse attacked with Diabetes.

By M. Lassange.

About three months ago there prevailed among the horses in the capital a very extraordinary malady, and which engaged the serious attention of veterinarians. It seemed to be, according to the account of M. Moiroud, that affection designated in the human being by the name of *diabetes*. In effect, among other symptoms, the animals attacked with this disease voided five or six pounds of very clear urine every hour.

It was of a light *jaunepaille* straw-colour, with a faint smell resembling that of healthy urine, and reddening turnsole, but that very feebly, and after a considerable time.

It was composed of,

Water - - - - -	98.0
Urea, benzoate of potash, acetate of potash, acetate of lime, chloride of sodium, and free acetic acid - - - -	1.5
Mucus, sulphate of lime - - -	0.5
	100

The urine, being analysed, differed from the ordinary urine of the horse.

1. In a greater proportion of water (for in ordinary urine water only constitutes seven-eighths of this fluid).
2. In the presence of acetic acid, which is in part free; and,
3. In the absence of any earthy carbonate, which exists in great quantity in the urine of a horse in health.

There was no saccharine matter, as in human diabetes.

Annales de Chimie, et de Physique, Aug. 1830.

Proofs of the Contagion of the Foot Rot.

By M. Sorillon, *Jun., Veterinary Surgeon at Abrac.*

1. On the 4th of September, 1824, M. Piene Vidal, butcher at Abrac, never had had the foot-rot in his flock, which then consisted of forty-six sheep, of which two were rams. He lent one of his rams, for the purpose of breeding, to M. Troussain, and which was put among the flock of that gentleman, consisting of thirty-six sheep, the greater part of which were affected with the foot-rot. On the 7th of October he was returned very lame; and M. Vidal knowing nothing about the foot-rot, and paying no attention to the lameness, placed him among his sound flock. Whether from negligence or ignorance, it was not until the 11th of December, that the shepherd informed his master that since the return of the ram sixteen of his sheep had become lame. Being desired to visit these animals, I soon recognized the foot-rot: six of them had three feet diseased, five two feet, and the other five only one.

2. In April, 1825, the flock of M. Vidal was entirely renewed, and consisted of fifty-two sheep: not one of them was lame. His sheepfold was clean and airy, the dung often removed, and the litter always fresh. Towards the end of the month he hired another shepherd. He, in spite of the caution that had been given him not to suffer his flock to pasture in company with those of other butchers, suffered them to mingle with those of M. Guimard, a butcher in the same place, and in whose flock the rot was general. On the 11th of May, M. Vidal wished me to examine two sheep and six lambs that were lame. They were all affected with the rot. Their separation from the flock, and other precautions, preserved the others from infection. The eight were likewise soon cured, but were not suffered to mingle again with the others during the remainder of the year.

3. About the end of June 1826, Mr. Vidal's shepherd had, without the knowledge of his master, and contrary to his express orders, again suffered his flock to pasture with those of other

butchers, and they were infected with the rot. On the 13th of the following July I attended fifteen of these sheep, all lame with the rot; the forty-nine others were sound. After having operated upon, and dressed, and separated the diseased, I interrogated the shepherd, and he confessed that he had disobeyed the injunctions of his master.

4. The rot had not again appeared at the latter part of November 1827, when the shepherd had leave of absence for eight days. During that time the flock was driven to its pasturage by a girl thirteen years old, who, for the sake of the company of other shepherds and shepherdesses, suffered them to feed with their sheep, and particularly with those of one person among whose flock the rot had committed such ravages that many of the animals dragged themselves on their knees, and all were in a state of complete emaciation. The flock had been confided five days to the care of this girl before Mr. Vidal was informed of what was taking place. He immediately dismissed her, and himself took charge of the sheep until the return of the shepherd. On the 14th of December he informed his master that eleven of the sheep were very lame. I saw them on the 20th, and recognized the foot-rot.

5. Until June 1828, none of the sheep were affected with foot-rot, in consequence of the care which had been taken to keep them separate from other flocks. On the 9th of June M. Vidal bought twenty-six sheep of the Poictiers breed, whose feet he washed and carefully examined before he placed them with his former flock. On the 17th of the same month his servant bought a sheep from the commune of Peintures. He purchased it from a flock in which the rot prevailed, but as he was not lame he thought there would be no danger in suffering it to join the flock of his master. Some days afterwards this sheep became lame; but the shepherd said nothing about it, for he attributed the lameness to a bite from his dog in that leg. On the 13th of July seven of the sheep began to go lame, and I recognized the existence of foot-rot in all of them.

Recueil de Méd. Vét., Juin 1831.

Cholera among domestic Animals.

I shall now mention, as coming under my own immediate observation, and not undeserving notice, as I cannot help connecting it with the cause of my attack, a remarkable coincidence, of what may be supposed atmospheric deterioration in some way, at this time:—that, for a week before, there had been a singular epidemic disease among the poultry in my compound, and in the

neighbourhood, not of the chicken-pox character, to which poultry are subject, but poultry in a state of apparently the most perfect health were suddenly seized, drooped, and died in an hour or two.

One of the dead ducks the day before was brought for my examination, when I found the whole of the inner coat of the intestines, from the gizzard downwards, in a high state of inflammation, and filled with mucus. I observed to the servants at the time, that it had died of cholera, and warned them to take care of themselves. Connecting this with the fact not unfrequently noticed, that during the epidemic visitations of cholera, a like mortality has prevailed among cattle, atmospheric deterioration, as a cause, may be fairly inferred. Mr. Chalmers remarks, at fol. 142 of the Madras Report, "It is a curious fact, that in the towns near the hills, where the epidemic was so fatal, a disease occurred among the cattle which kept pace with, and often exceeded in mortality, that of the human species." Dr. Ranken, too, observes, in the 74th number of the Med. and Phys. Journal, "At Rajputana, during the epidemic prevalence of the disease, the brute creation did not altogether escape the sickliness of the period; many camels, and goats in particular, having died of violent diarrhœas and other ailments." The collector also of this district (Madura) authorizes me to assert, that in numerous instances, and from various parts of the collectorate, the like was not only reported to him, but urged by many of the riots or farmers as a plea for the remission of their kists or revenue dues. And the same I also heard was the case in the Coimbatore district.

Searle on Cholera.

Poisoning by the Sebacic Acid of Goose-Grease.

On the 2d of April 1829, Dr. Siedler was called to attend MM. H— and their children. On his arrival, he found the two brothers H—, one aged thirty-one, the second twenty-eight years, and the two children of the first, one a girl, æt. four, the other a boy, æt. two and a half, all presenting the following symptoms: Cold sweat, anxiety, vertigo, general paleness and prostration of strength, eyes sunken and pupils dilated; burning pain was felt in the lower part of the belly, increased by pressure; violent vomiting, succeeded by ardent thirst, for which the patients had drunk large quantities of milk, which was thrown up without producing any effect; tongue dry; involuntary discharge of urine and fæces.

The eldest brother was insensible for six minutes, his respira-

tion was scarcely visible, his pulse imperceptible, and the heart's action exceedingly weak. The second brother had vomited blood several times, but he experienced less abdominal pain than the others. In the little boy, the globes of the eyes were turned upwards, the lips livid, and the pulse scarcely sensible. Lastly, the symptoms in the little girl were the mildest of all. M. Siedler suspected at once that these accidents were occasioned by the use of a certain quantity of goose-grease, which had been employed in the preparation of some meat, of which the four patients had eaten shortly before the symptoms began. An emulsion containing hyoscyamus was prescribed, and on the 9th of April all had recovered.

The vomited matters were subjected to chemical analysis: they were strongly acid, but contained no metallic poison; but the following facts induced Dr. Siedler to attribute the illness to the effects of sebacic acid. The lady of the house had made use of goose-grease to dress some veal, and all the persons who partook of the dish fell quickly sick; the lady herself, who had barely tasted it, felt it so disagreeable that she took no more. None of the grease which was suspected to have caused the accident remained for examination, the pot which contained it having been entirely emptied and cleaned out; but on examining the same kind of grease contained in three other pots, it was found to exhale a strong repulsive odour, and it reddened strongly blue paper tinged by turnsole. Three ounces of this grease were given to a vigorous well-formed dog; an hour after, his extremities became violently convulsed, he cried piteously, he refused to eat, his eyes were suffused, pupils dilated, skin cold, and arterial pulsations scarcely perceptible. In this state he continued for thirty hours, after which he slowly recovered.

Lancet, from *Hufeland's Journal.*

At what Time Horses should be let Blood.

By the Sieur de Solleysell, *Querry to the French King.*

None, I believe, call in question but that there are some times in the year wherein one humour predomines more than another; for example, all agree that it is the blood which predominates in the *Spring*, in the *Summer* bile, in *Autumn* melancholy, and in *Winter* phlegm. That which is performed in the space of a year is renewed every six hours; which is the time wherein the whole circulation of the blood is perfected, as an infinite number of experiments have discovered.

From midnight to six a'clock in the morning it is the blood that predominates; from six to twelve a'clock in the day it is phlegm;

from twelve a'clock to six at night it is bile; and from six to midnight it is melancholy. This, which I affirme may seem to be a vain discourse, without any kind of ground or solid foundation, but you may satisfie yourself by an easie experiment made after this manner:—

Endeavour to know the temper of your horse, and let us suppose him to be bilious; then draw blood of him betwixt twelve a'clock in the day and six a'clock at night, that is to say about four, and you will find, that as you have made the evacuation in that time wherein bile did predomine, so you will have evacuated a great deal of bile, which will convince you of the truth of what I affirme, because it will be almost all bile; whereas if you should take blood from the same horse about four a'clock in the morning, which is the time that blood predominates, you will then find his blood good, and but a little mixture of bile amongst it; and so of the other humours.

This change in the mass of the blood is a certain token of its circulation; and in effect, if it had not this motion, it would corrupt after the same manner as those humours that are in the body do, who either ly still or are stopt in some part of the body, and which by reason of their putrefaction are the cause and origine of many diseases: and blood, did it not circulate, would so much the more easily putrifie, in that it containes in it the principles of corruption; to wit, heat and moisture.

Now this being laid down as a principle, is it not very advantageous to evacuate the humour that offends, or causes any indisposition in the horse? This may, no doubt, be done by this observation, which is to take blood of him in that time wherein the humour which a man intends to evacuate doth most predomine in the veins; but, upon the contrary, blooding will be prejudicial to him if practised at any other time, because there will then be evacuated an humour which neither offends in quantity nor quality: it is, therefore, of the greatest consequence to observe exactly the time and hour in which it is most proper to blood a horse.

I lay down, then, for an infallible rule, that the sanguine horse should be bled at four in the morning, the pituitous or phlegmatick at ten, the bilious or fiery at four a'clock in the afternoon, and the melancholick at ten at night; and if till now you have performed many bloodings which have produced bad effects, it is because you did not know and make use of these observations.

Blooding should be also practised as much as possible in the increase of the Moon, and never when she is in the signs of *Leo* or *Taurus*, when the blood is to be taken from the neck; or if it be

from any other part of the body it is to be taken, you are then to observe never to take blood from that part which is governed by any sign while the Moon is in that sign: for example, in the forethighs or plate veins when the Moon is in *Gemini*.

The letting of the blood should be also performed in a calm and clear day, and which is free from clouds and fogs; because the veins, being emptyed a little by the blooding, do immediately attract into their vacuities the air, which is an universal spirit, and which, if pure and clear, will be in no hazard of altering the blood, but, upon the contrary, will fill them with pure atoms, which will rectify it; whereas, if it be moist, to open the veins at such a time is just to mix with the blood noysome serosities with which the veins do many times abound: moreover, you are to observe not to let blood when the Moon is in *opposition* to the Sun, that is, when it is full Moon; nor when they are in *conjunction*, which is new Moon; nor when they are in a *square*, which is the quarters; because in all these times blooding is prejudicial.

Without designing to shew my abilities and skill, I can assure you that, before I made these observations, I took sometimes blood from horses which did almost cost them their lives, and that only for once bleeding; and that, since that time, I have performed bloodings which have manifestly saved them, and that chiefly for having caused to take it at a proper and seasonable time.

I had almost forgot to tell you that you are never to take blood from horses in the *solstices* nor *æquinoxes*, for these are times in which nature is a kind of sufferer, and therefore waits for some *crisis*, or other extraordinary effect; you are then not to incommode her at these times, because it may produce very considerable accidents, and this is to be observed, not only upon the very days themselves, but also two days before and as many after. But if you know certainly the constitution and temper of your horse, then, if he be sanguine, observe to blood him when the Moon is in any of the earthly signs, which are *Taurus*, *Virgo*, and *Capricorn*; if he be cholerick, blood him when the Moon is in a watery sign, such as *Cancer*, *Scorpio*, or *Pisces*; if melancholick, when the Moon is in an airy sign, such as *Gemini*, *Libri*, or *Aquarius*; and if phlegmatick, then when the Moon is in any of the fiery signs, which are *Aries*, *Leo*, and *Sagittarius*. I have added these circumstances purposely for the curious, who I know will please it.

Miscellanea.

Skill of a Farrier in the Isle of Skie.

There is a smith in the parish of Kil-Martin who is reckoned a doctor for curing faintness of spirits. This he performs in the following manner:—The patient being laid on the anvil, with his face uppermost, the smith takes a big hammer in both hands, and making his face all grimace, he approaches his patient, and drawing his hammer from the ground as if he would hit him with his full strength on the forehead, he ends in a feint, else he would be sure to cure the patient of all diseases; but the smith being accustomed to the performance, has a dexterity of managing his hammer with discretion, though, at the same time, he must do it so as to strike terror to the patient. This, they say, has the designed effect.

The smith is famous for his pedigree; for it has been observed for a long time, that there has been but one child born to the family, and that a son, and when he is grown to man's estate the father soon after dies. The present smith makes the thirteenth generation of a race of people who are bred to be smiths, and all of them pretend to this cure.

Martin's Western Islands of Scotland. See Pinkerton's Travels, vol. iii, p. 683.

Swarm of Nautical Bees.

As the Honiton packet was leaving a port in Wales, on her voyage to Lyme, the master perceived a swarm of bees settle on a rock which the rising tide would soon have covered. He sent a boat with a tub, which was sugared for the purpose, and took the bees in and brought them on board. They took up with their new habitation, began to work, and on removing them to a hive at Lyme-Cobb a comb was commenced. During the voyage they flew ashore for honey, and followed the vessel again, which was at times sailing with a strong breeze.—*Sherborne Mercury.*

Mary-le-Bone Police Office.

The Chimney Sweeper v. *the Horse Doctor.*

Mr. Bell, a horse-doctor and farrier, appeared to shew cause why he indented a most ungentlemanly blow upon the dexter cheek of Mr. Cooper, by profession a chimney sweep.

Mr. Cooper stated, that Mr. Bell resided at the opposite house in the mews, and deposited sundry cartloads of dung directly opposite his door, to the serious annoyance of his own olfactory nerves, as well as those of his more delicate half. He took a broom and swept the dung over to Mr. Bell's; but that gentleman swept it back again. The flue aspirant swept a second time; and so did the horse-doctor. They swept and swept until at length the horse-doctor got tired; and, to end the matter, proceeded from sweeping to commit a breach of the peace, and assaulted the chimney sweep.

"Please your honour and worship," began the horse-doctor, with an emphasis and action which would have done credit to an Irish Court of Common Pleas, "please your honour and worship, I'm only sorry I'm engaged in so black a concern. I admit Mr. Cooper was the best sweeper, but that's his profession; and I hope you will draw a line between him and a gentleman wot doctors horses."

"The only line, I think," said Mr. Rawlinson, "that ought to be drawn, is the gutter that divides your houses, and you shall enter into your recognizances to keep the peace."

"That's all I want," exclaimed the sweep; and the recognizances were entered into accordingly.

Morning Herald.

A Rabid Ass.

A few days ago Mr. William Rayner, of Birkby, his wife, and brother, were attacked by an ass in Birkby Lane, near Huddersfield, which seized the back part of the lady's dress in his mouth. He was instantly knocked down by Mr. Rayner with a stone, who repeated his blows, aided by his brother, till the ass appeared dying. They then dragged him down a steep bank, and left him in strong convulsions. They had not proceeded far, however, when the ass was again on his legs and in pursuit of the party, who, to save themselves, leaped over a wall; which they had scarcely done, when he arrived and attempted to scale the wall, but was knocked down by a stone, and soon after expired. Since his death it has been ascertained that he had been bitten by a dog in several parts of his body.—*York Herald.*

We have much pleasure in being able to insert a plan of the whole Course of Medical Lectures, during the ensuing Session, at the University of London.

		Mon.	Tues.	Wed.	Thur.	Fri.	Sat.		
9 to	10	—	—	—	—	—	—	Midwifery - - - - -	Dr. D. D. Davis.
10	11	—	—	—	—	—		Chemistry - - - -	Dr. Turner.
11	12	—	—	—	—	—	—	Demonstrations and Dissections - -	Mr. R. Quain.
12½	1½	—	—	—	—	—		Dispensary Attendance - - -	Three Professors.
2	3	—	—	—	—	—		Materia Medica - - - -	Dr. A. T. Thomson.
3	4	—	—	—	—	—		Anatomy and Physiology - - -	Dr. Quain.
3	4	—	—	—	—	—		Comparative Anatomy, from Oct. 15 to July 31	Dr. Grant.
3	4	—	—	—	—	—		Zoology, from Feb. 1 to April 30 - -	Dr. Grant.
4	5	—	—	—	—	—		Principles and Practice of Medicine - -	Dr. Elliotson.
5	6	—		—		—		Surgery - . - - -	Mr. S. Cooper.
5	6		—		—			} Veterinary Medicine and Surgery -	Mr. W. Youatt.
6	7	—		—		—			
7½	8½	—		—		—		Medical Jurisprudence - - -	Dr. A. T. Thomson, & Mr. Amos.
-	- -	—	—	—	—	—	—	Botany, from the beginning of October to the middle of November, and from the first of April to the middle of May - -	Mr. Lindley.

THE

VETERINARIAN.

VOL. IV. OCTOBER, 1831. No. 46.

Communications and Cases.

Ars veterinaria post medicinam secunda est.—VEGETIUS.

ON THE INDIAN BURUSATEE.

By Mr. JOHN TOMBS, *V.S., Bengal Artillery.*

BURUS signifies, *rain;* burnu, *to rain;* burusana, *rainy;* burusat, *weather, rains;* burusatee, a *disease in horses*, in India, supposed to be a specific disease affecting the superficial absorbents of the body, and sometimes the deeper-seated ones, the common integuments, cellular membrane, and eventually the lungs; the lungs become tuberculous, though very rarely. It appears to be a kind of spurious farcy.

Causes.—With regard to the causes of this inveterate malady I can say but little; they are exceedingly obscure. It invariably takes place at the commencement of the periodical rains; I have known it attack horses as early as March, but then a large quantity of rain fell the preceding month. Some people say that they have traced its origin down to Arab blood. Horses of a mungrel breed are highly susceptible of this disease: horses whose sires are Arabians, and dams country bred mares. The Honourable Company's stud-bred horses are most of all subject to it. English and thorough-bred country horses are least of all liable to it. It has been said to be a disease of poverty, but experience has taught me otherwise, for I have seen horses of all ages, all sizes, all colours, all conditions and constitutions, attacked with burusatee. I have observed that thin-skinned horses are more frequently affected with it than others, which proves, in some measure, that it originated in high-bred horses; and also favours the opinion of those that traced its origin to Arab blood. I should not omit to mention here, that we have several English thorough-bred stallions imported annually; country-bred horses are covered by them, the offspring of which are more prone to this disease than any other race of horses in India: this I can prove by facts. By referring to my case-book for 1830, I perceive that I had twenty-

nine cases of burusatee in the hospital stables at the same time: twenty-one were stud-bred horses, by English stallions, out of country mares; the remaining eight were country-bred horses. This circumstance induces me to think that the predisposing or remote cause may be foreign blood, at least foreign to India.

The immediate, exciting, or proximate causes may be the vicissitudes of the temperature of the atmosphere. A sudden change takes place in the atmosphere when the periodical rains begin; at this particular time the disease makes it appearance. Previous to the heavy rains falling the weather is excessively hot and dry; subsequently the atmosphere is very moist, and occasionally cool: miasma is very predominant. The disease so frequently taking place at this season of the year, leads me to suppose that it is constitutional: whether there is a poison lurking in the system previously to the rains, and roused into action by the sudden transition of the weather; or whether it is the miasma that is the cause, remains a matter of doubt.

Preventives.—The best preventive that I am acquainted with is copious venesection and purgatives, about three weeks or a month before the rains begin. If a horse has once had the disease, it is almost impossible to prevent its recurrence.

Symptoms.—The disease makes its appearance in various parts of the body, as the penis, prepuce, extremities, head, neck, &c.: there is no external part of the body exempt from it. The part affected swells and ulcerates, and soon degenerates into a burusatee tubercle: unless we have a tubercle we cannot have a true burusatee sore. Many people are totally unacquainted with this characteristic symptom; they frequently confound a common sore with a burusatee one. I can only distinguish a burusatee sore from a common one by the presence of a tubercle. I am quite satisfied when I see pus oozing from the mouths of arteries, that it is a case of burusatee.

Fearing that I shall occupy too much room in your truly interesting Journal, I will postpone this subject for the present, and continue it in the succeeding Number.

A SUCCESSFUL CASE OF NEUROTOMY.

By the same.

Previous to my departure for India, I was asked by an acquaintance in the country to look at a blood filly of his. On inspecting her, I ascertained that she had got an enormous ring-

bone on the off hind pastern: she was exceedingly lame; and had been blistered repeatedly with no good effect. I told him that it would be advisable to excise a portion of the nerves going to the foot: he most willingly assented to have the operation performed. I excised a portion of the metatarsal nerves, and ordered the wound to be treated accordingly. The reason why I did not divide the nerves immediately below the bifurcation, was on account of the ringbone being so large and extensive; indeed it was nearly impracticable. I did not hear the result of the operation until my return to England, which was a short time since. My acquaintance informs me, that the lameness began to diminish about three hours after the operation was performed; in three days there was a total cessation of lameness. As soon as the wounds healed he put her to active work; she appeared to be perfectly upright; he raced her three times, and then sold her. She is now performing active service, and quite free from lameness. I could enumerate several successful cases of neurotomy, but this will suffice.

Barrington, Gloucestershire, Sept. 1831.

ON THE TREATMENT OF TETANUS.

By Mr. W. Simpson.

Although, as an abstract principle, I cordially subscribe to the opinion, that one unsuccessful case contributes more to the advancement of pathological knowledge than many successful ones; yet, like other rules, it admits of exceptions, and amongst those exceptions I would rank many cases of tetanus, inasmuch as it is a disease affording few post-mortem morbid appearances, and whose favourable termination must almost invariably be attributed to the remedial means adopted. This circumstance prompts me to offer an account of two successful tetanic cases occurring in the practice of Mr. Geo. Carruthers, of Lancaster, who has kindly permitted me to make them public; which I shall do in his own words, reserving for myself the privilege of appending such remarks as a consideration of the cases may suggest:—

"On the 11th of May 1828, I was requested to see a two-year-old colt, belonging to Mrs. Patrickson, of this town, which I found with all the ordinary symptoms of tetanus; the jaws nearly closed—muscles generally rigidly contracted—the membrana nictitans covering a great portion of the eye, &c. &c. Upon inquiry, it appeared that the colt had been docked nearly a month

before by a common smith; and an examination of the end of the dock shewed the wound exhibiting a particularly unhealthy aspect. I immediately determined to put the animal under a plan of treatment upon the principle recommended by Wilkinson, of Newcastle.

"May 11*th*.—Took away about 7lbs. of blood from the jugular vein, and gave aloes, ʒvi; dressed the wound with ung. resinæ vir. daily.

"12*th*.—Applied a powerful rubefacient, amounting almost to a blister, freely from the head to the tail, along the course of the spinal canal, and immediately after put on two fresh sheep skins, which were replaced nearly every day; by which course a most profuse perspiration was induced and continued. Gave ol. ricini, lbss.: frequent injections of warm water with soap and common salt.

"13*th*.—Injections repeated. Bowels now freely open. ℞. Opii, camphoræ, et aloes, $\overline{aa}$ ʒj mane et vespere.

"14*th*.—℞. Opii et camphoræ, $\bar{a}$ ʒj, $\overline{cu}$ aloe, ʒij mane et vespere. Injections frequently.

"15*th*.—Bowels somewhat confined: gave aloes, ʒiss in solution. ℞. Opii et camphoræ $\overline{aa}$ ʒiss mane nocteque.

"16*th*.—Sedative medicine repeated mane nocteque. Injections daily.

"17*th*.—Sedative medicine repeated mane nocteque. Embrocatio sinapii applied to the neck and jaws.

"18*th* and 19*th*.—Sedative medicine repeated mane et vespere.

"20*th*.—Bowels somewhat confined: aloes ʒvi in solution.

"21*st* and 22*d*.—Sedative medicine repeated. Injections, &c.

"23*d*, 24*th*, 25*th*, 26*th*, 27*th*, and 28*th*.—℞. Opii et camphoræ, $\bar{a}$ ʒj, $\overline{cu}$ aloe ʒiss mane nocteque.

"During the first six or eight days the symptoms hourly increased, and for two days the jaws were completely closed. I think about the ninth day indications of a little relaxation of the muscles appeared; and from that time the rigidity and spasm very slowly abated, until the colt was restored to health: he had constantly before him gruel, crushed oats, or barley made very wet; and when the jaws became a little open, green food was given also: he was very much debilitated—so much so, that he fell down several times, and was each time raised by manual strength. During the whole progress of the disease I paid particular attention to the state of the bowels, seeing they were always relaxed, at the same time persevering in the sedative medicine.

"A two-year-old filly, belonging to the same person, and docked on the same day as the colt, shewed symptoms of the dis-

ease on May 14th: she was put under precisely the same treatment as the colt, with precisely the same result.

"I had another case, a chesnut horse belonging to Mr. Pritt, which I first saw on the 7th March, 1829; he underwent similar treatment. I first took away about 10lbs. of blood, gave powerful opening medicine, say aloes, ʒviii. c̄u hydrarg. sub. ʒij. with frequent injections, followed up by opium, camphor, &c. I also applied the embrocatio sinapii from the head to the tail, as in the former cases, sheep skins daily renewed, &c.; but notwithstanding all my endeavours, he died on the 17th from obstruction in the bowels. The jaws had become so far relaxed, that he could eat hay tolerably well."

Remarks.—We all have heard, and I dare say we all acknowledge, that "one fact is worth a hundred theories." Now, it is a fact (and there are many similar instances), that those two animals affected with tetanus perfectly recovered; and that one remedy employed was a vesicatory or blister, applied along the course of the medulla spinalis, but I cannot satisfactorily explain to myself the "modus operandi;" in fact, I must confess that I am somewhat sceptical about the utility of blisters in cases of tetanus. When, however, I make this confession, I wish it to be understood that I do so with considerable reluctance and timidity, because I am well aware that the converse opinion is entertained by most of those whose talents and practical experience entitle them to great influence on professional subjects; nevertheless, I have too great an abhorrence of quackery to be content without inquiring why and wherefore such and such treatment produces beneficial results. I will, therefore, venture to make an observation or two upon the practice of blistering in cases of tetanus; and I am the more inclined to do so, because many other curative means are employed in conjunction therewith, to which, perhaps, the recovery may be attributed. In the first place, let us inquire what is the object of applying a vesicatory along the spine? I am told it is expected to act on the principle of counter-irritation, and that the discharge produced by it will have some depletive effect. Now admitting, for the sake of argument, the necessity of counter-irritation, I would question the efficacy of any external application; and I would do so on the ground of the great mass of muscles, &c. intervening between the vertebral canal and the integument, which muscles are supplied with blood by arteries distinct from those which supply the medulla spinalis, inasmuch as the dorsal and posterior cervical arteries, together with unimportant twigs from the carotids, principally ramify through the former, whilst branches from the intercostals and vertebrals are distributed to the latter: as to depletion, I do not think that any advocate

for copious venesection in tetanus would take into consideration the dribbling from a blister. But setting aside the question of the efficacy or non-efficacy of counter-irritants in such a situation, I do not altogether see their expediency. I may be told, perhaps, that a post-mortem examination shews us the medulla spinalis or its membranes in an inflamed state: I grant that such an appearance is observed, but it is not invariably the case, and in the great majority of instances the inflammation is very slight, and we look upon it rather as a consequence than as a cause of the disease, for I do not know that any artificial inflammation of that part will produce tetanus. If, then, inflammation of the medulla spinalis or its membranes be not a necessary accompaniment or cause of tetanus, and if it be only occasionally present, I respectfully submit to the consideration of the profession, whether it be advisable to apply counter-irritants along the spine, and thereby further irritate an animal already in a highly irritable state, and for whose recovery quietude and freedom from disturbance are almost essentially requisite. I have not had sufficient opportunity of noticing minutely the direct effect of this practice, but it certainly does not appear to me to be of that great importance in the treatment of tetanus which it is deemed by many; in fact, I cannot help thinking that in many cases it retards, and in none, facilitates the recovery of the patient.

It was my intention to have made a few remarks on the practice of purgation and venesection, but I feel I should be intruding further than the occasion warrants; I will therefore conclude by expressing a hope, that what I have said may not be deemed the offspring of presumption.

London, Sept. 15, 1831.

SINGULAR PENETRATION IN THE THORACIC CAVITY OF A COW.

Communicated by Charles Chaplin, *Esq., Croydon.*

To the Editors of "The Veterinarian."

Gentlemen,

About the beginning of last month I perceived a very favourite cow of mine to look very dull and heavy, and evidently labouring under considerable pain; and upon a close examination of her, I perceived a small piece of wood protruding from her chest; and conceiving this to be merely a common splinter, I attempted to remove it with a pair of pincers, but finding the resistance much greater than I expected, and, upon a more minute examination,

it being very clear that this was not an operation to be performed by an unskilful hand, I immediately dispatched my servant to Mr. Thomas Turner, the veterinary surgeon of this place, to request his assistance. He rode over immediately, and, after his repeated attempts with powerful instruments to extract the foreign body had proved ineffectual, he promptly had recourse to the scalpel, making a crucial incision through the muscles six inches by four (an aperture of this magnitude being required to admit of the hand grasping a firm hold of what now appeared to be a stake). The cause of resistance by this time having been ascertained to arise from the point of the stake being most rigidly fixed between the fifth and sixth ribs, he then with considerable muscular force succeeded in drawing out the supposed splinter, which however proved to be nothing less than the upper part of a stake, fourteen inches and a half long and six inches round.

Although this case did not exactly fall within the province of a veterinary surgeon*, still Mr. Turner kindly undertook the operation; and it is to his skill and promptness that I am indebted for the preservation of a very valuable animal, which is now perfectly recovered, notwithstanding the accident happened only a few days after her calving.

I am, Gentlemen, &c.

CHARLES CHAPLIN.

TWO CASES OF NEUROTOMY.

By Mr. HENRY CHRISTIAN, *V.S., Canterbury.*

IN August 1830, I was requested to see a pony which had been lame for some months, and when I saw it was almost entirely useless. After a careful examination, I found a small exostosis growing from the inner and inferior part of the large metatarsal of the near hind leg. I pursued the antiphlogistic system of bleeding, purging, and evaporating lotion, and the pony became much better, but still far from sound: after which I recommended a strong blister, which was repeated thrice; still he continued lame, and I advised the owner to have him destroyed. The

* We must here beg leave to correct Mr. Chaplin. The ailments and the accidents of every domesticated animal "fall within the province of the veterinary surgeon." So says ancient practice—so says the practice of every veterinary school in the world, save that of St. Pancras—so say common sense and humanity. It, however, in the present state of things among us, reflects much credit on Mr. Thomas Turner that he acted so promptly and so skilfully in such a case.—EDIT.

pony being a great favourite, he wished that I would pursue any treatment which I thought might give a chance of success: it occurred to me that neurotomy might be of service, and I determined upon the operation, by excising a portion of nerve just above the enlargement of bone. The pony was prepared in the usual way by bleeding and physic, and immediately after the operation there was a visible alteration in his action. I ordered that he should be turned out for three months, at the expiration of which time he was perfectly sound, and still continues so, although worked excessively hard: the pony was lame more or less, prior to the operation, for twelve months.

The other case was a large brown cart gelding, which had been lame more or less, with ringbones and contracted hoofs, for seven years; and when brought to me was so lame, that it was with difficulty he could be urged along, and when moving was so tardy, that he would not throw scarcely any weight into his collar. He was brought to me about six months since to be nerved, as the owner termed it. He got up, after the operation, nearly sound; and there was such a visible difference in his action, that the owner, when he saw him, could scarcely believe it to be his own horse. He went to work about three weeks after operation, and became perfectly sound, and still continues so, although worked upon the hard roads in a coal waggon.

VETERINARY SCHOOLS.—No. IV.

COPENHAGEN.

A FATAL epidemic prevailed in Denmark, both among horses and cattle, in 1763. There was no veterinary school then in Denmark, and no adequate assistance could be obtained to arrest the progress of the disease. The Count de Bernstoff procured an order from the Danish government for the selection of three young men from the medical college at Copenhagen, who were to be sent to Lyons to study the veterinary art, at the newly-established school in that city. Messrs. Abildgaard, Muller, and Bachhuusen, were selected; or rather the first of them, who was already known as an excellent practitioner, as well as a man of general science, volunteered.

M. Abildgaard, in a letter addressed to Messrs. Chabert, Flandrin, and Huzard, the editors of that valuable work "Instructions et Observations sur les Maladies des Animaux Domestiques," frankly acknowledges that he and his colleagues commenced their career at Lyons under the influence of very erroneous impressions, and undervalued the patriotic intentions of

Bernstoff. They seemed, indeed, to have forgotten the object of their mission, and they intended only to pursue the studies to which they had before devoted themselves, holding in little account the remedies which France could offer to arrest the epidemic that desolated Denmark. Like too many medical students and practitioners of the present day, they could not bring themselves to believe that that which had reference only to the lower orders of animals could deserve their serious consideration and study.

They were, however, agreeably surprised when they found the theory and practice of veterinary medicine taught with a degree of accuracy and precision not exceeded in the lectures of the most talented of the professors of that superior school of human medicine which they had just left, and when, in fact, the instructions which were given on the anatomy and diseases of domestic quadrupeds were clearing up many disputed questions on the most interesting points of human physiology and pathology,—and when the attention which they bestowed on the brute was rapidly preparing them for the more scientific and successful practice of their former profession.

M. Muller was soon obliged to return to Norway, where he afterwards acquired a high and deserved reputation as a physician; and Backhuusen was, immediately on his return, appointed surgeon to the small-pox hospital, and soon afterwards died: M. Abildgaard, however, after studying two years and a half at Lyons, returned to Denmark, in love with his new profession, and determined to sacrifice all his former prospects to engage in its pursuit.

The times were much changed in Denmark. The king had died, and his death had been followed by a change of ministry and a change of measures. He found, however, in one man, the John Hunter or the Cline of the Danish veterinary school, a strenuous, although not successful supporter. M. de Berger was then chief physician to the king. The cause of veterinary science had been abandoned by all his colleagues, but he saw its important connexion with medical science, and with agricultural prosperity. His knowledge of the world had likewise taught him, that men are most easily convinced and governed when their pecuniary interests are benefitted; and therefore he obtained an order from the king, that M. Abildgaard should attempt to arrest the progress of this murderous epidemic. Here, however, prejudice was even stronger than interest. Bernstoff stood alone as a minister, and Berger alone as a physician, in their just estimation of the importance of veterinary science, and their patronage, and even the skill and zeal of Abildgaard, were perfectly

ineffectual. Few patients were committed to him, and consequently little result appeared from his labours, and he was obliged to return to the practice of human medicine, which he exercised for six years with some success, "in spite," as he feelingly says in his letter, "of the prejudices which existed against the veterinary art, which he was known to have studied—prejudices equally injurious to his fortune, and to that public confidence, without which the physician is nothing, and which he would never have been able to surmount, had it not been for the unwearied exertions of his friend De Berger.

In 1771, Messrs. De Berger and Abildgaard were directed to draw up the plan of a veterinary school to be established in Denmark: in M. Œder, one of the most celebrated men of that time, the project likewise found a zealous advocate. Dispirited and disgusted by six years of disappointment and privation, Abildgaard had now changed his views and purposes; and he refused to lend himself to that, in the promotion of which he would once have sacrificed his life: he had already suffered too much to put to hazard his future prospects. Judging from the past, he saw numerous difficulties surrounding the execution of the plan, and he did not conceal from his patron the reasons which compelled him peremptorily to decline the offer.

De Berger, however, was not to be repulsed: he represented to his friend the injury he would do himself if he refused to comply with the wishes of the minister; and he reminded him, that, although the result had not been what Bernstoff had anticipated or what Abildgaard had a right to expect, yet he had been sent abroad, at the expense of government, to learn the veterinary art—it had been the avowed intention of government to turn the knowledge so acquired to the advantage of his country, and there was a claim upon him from which he could not honourably retire: and to this De Berger added, that the business, being seriously taken up by the government, must necessarily succeed. Abildgaard yielded, and presented the required memoir, in which he disguised not the disadvantages under which a veterinary school must then be established, the forgetfulness in himself of much that he once knew, and the total want of experience in all about him. The minister was now as much bent upon the plan as the venerable physician De Berger; and Abildgaard was ordered to enter into communication with the director of the royal stables, in order that the school might be immediately established. It would seem, however, as if fate had determined to persecute the unfortunate Abildgaard. The well-known revolution now took place in Denmark, and, with it, the subversion of all that the former ministry had planned.

In the course of that year, a seemingly infectious disease appeared in the royal stables, and carried off the greater part of the horses. Abildgaard was consulted. He recognised a species of acute inflammation of the lungs; and by some simple remedies, as a change of food, and copious bleedings, he cured many of those that had been attacked, and preserved the rest from becoming diseased; and in despite of the farriers, who crossed him at every step, and predicted that his violent treatment would cause abortion in all the valuable brood-mares, he chased every vestige of disease from the stables.

After success so complete, the establishment of a veterinary school was finally determined on, and M. Abildgaard was ordered to carry the plan into execution. The treasury, however, was poor, and the money was not forthcoming; but this public-spirited individual, roused once more to the pursuit of his favourite object, was nothing daunted. He purchased, at his own expense, certain buildings, as convenient for the purpose as he could procure them. He fitted them up as an infirmary, and commenced a course of veterinary lectures. A very insufficient salary was allowed him by government, and clogged with the appointment of two directors, under whose control he was, in a manner, placed. Still he was not discouraged, although it was evident that his interest was least of all consulted, for the expense was thrown upon him, and the remuneration was most inadequate. He cheered himself with the hope, that, when time had demonstrated the utility of the establishment, his labours would be held in due estimation; and in the course of the same year he purchased the extensive plot of ground on which the veterinary school is now erected, and built hospitals, and dissecting rooms, and theatres, and every thing necessary and ornamental connected with such an establishment; and when he took possession of that which was in every sense his, he had twenty pupils, beside the farriers and grooms of the king.

The first examination took place on the 15th of February 1775, when twelve students were deemed worthy to obtain a diploma.

In 1776, two new directors were added to the former, and they presented a memorial to the king, stating that the school would become more useful, if a greater number of the pupils could be lodged within its walls, in order to attend on the practice of the hospital, and to be always present at the demonstrations. Chambers for the pupils, and additional stables for the horses, were accordingly erected, and an annual income appointed for the support of the institution, the greater part of which was ordered to be contributed by the different cavalry regiments, who would hereafter enjoy the advantage of having well-instructed veterina-

rians among them. A considerable sum was likewise drawn from the royal stables, which would enjoy a similar benefit. The money advanced by M. Abildgaard was also repaid to him.

On the 22d of July 1777, an edict was issued which confirmed the rights and privileges of veterinary surgeons, and forbad any from practising the art in the capital who had not submitted to an examination at the college, and obtained a certificate from it.

In 1784, the library of M. Abildgaard was purchased by government, and given to the college; and his collection of instruments, and models, and anatomical preparations, was soon afterwards added. On the following year, M. Wiborg returning from his botanical voyage, and being appointed the other professor, his splendid library and collection of specimens were likewise added.

On the ground floor of the principal building is a spacious theatre: one wing contains the museum, and the other the library, above which is the residence of the principal director. In another part of the building is the forge, the apartments of the professor of shoeing, and comfortable lodgings for sixteen students. At the back are two stables for fourteen horses, and the dissecting-room; and at the side is the pharmacy, and another stable for eight horses.

The two professors deliver four lectures each in the week, and the Sunday is appropriated to the instruction of the apprentices of farriers, who are at leisure on that day only: the pupils also undergo weekly examinations on the subjects of the lectures.

The students are divided into three classes. All attend the lectures, demonstrations, and dissections, but, while the first class takes its weekly turn in working at the forge, the second discharges all the duties of the infirmary, even to the feeding and other care of the sick horses; while the third class employs its leisure hours, in completing its notes of lectures or practice, and otherwise pursuing its studies. In the winter they are daily occupied in dissection, and principally the dissection of the horse. The summer is devoted to surgical operations, performed on condemned or purchased horses, to accustom them to the operations, and to the healing process afterwards. The lectures occupy two years in the completion of the different courses; but the pupils are compelled to remain three years, that they may be perfectly grounded in every part of their profession. The elements of natural history and medical chemistry are first taught; to this succeeds a course of anatomy, first with reference to physiology, and then to the general principles of pathology; to these follow veterinary economy, embracing the choice, the feeding, and the

management of the horse, the diseases to which he is subject, and the method of cure; the history of drugs, their nature and virtue, and the manner of preparing them.

The two professors thus divided the different subjects:—M. Abildgaard took the materia medica and chemistry, and the principles and practice of veterinary medicine: he also inspected the infirmary, and the treatment of the sick horses was directed by him.

M. Wiborg lectured on anatomy during the winter: in the summer he described the exterior form of horses and other domestic animals, and the method of breeding and training them: he likewise performed all surgical operations, superintended the forge, and gave lectures on botany.

The number of students is, on the average, about thirty.

This very useful establishment was doomed afterwards to receive another shock. A discontented pupil published a sketch of the Copenhagen school in 1788, in which he affirmed that anatomy and veterinary medicine were all but abandoned; for the professor, too advantageously known in the world of science, devoted himself to profounder researches than the veterinary art would comprise. This drew from the directors of the establishment the public and honourable testimony, that, since the establishment of the school, the only object of the care of the professor had been to render it productive of all that public benefit of which it was capable; that his lessons on the theory of the art were illustrated by unfailing recourse to practice; that he had relinquished the most splendid prospects to devote himself to the cares of the veterinary school; that he had not only been the instructor but the friend of the pupil; and that the success of his labours was evident in the number of skilful practitioners which were spread over Denmark, and the improved condition of horses and cattle.

The professor himself confesses, with a candour that reflects on him the highest credit, "There are a thousand things for me yet to do for veterinary science, which my health and my powers have not permitted me to execute. I should have written more, or rather I should have printed more, for I have composed much, which I propose to give to the public when my works have received their full and last correction. The principal aim of this establishment, to which I have sacrificed all my time, has been to render charlatans in my profession less presumptuous, and to diminish the accidents which, under the pretext of curing these unfortunate beings, have so multiplied under their hands. The loss of a few horses or cattle may be the ruin of many an industrious father of a family, and these animals, too, have feelings

of pleasure and pain like ourselves. If I have succeeded in this, surely I may be indulged if the reputation I have acquired for general science, at home and abroad, has tempted me to spend a few leisure hours in deeper and yet not unuseful pursuits." The truth was, M. Abildgaard was a century before many of the blockheads of his profession, and he shared the inevitable fate of such men. He lived, however, to witness the full success of his labours, and the school at Copenhagen continues to flourish.

AN UNUSUAL CASE OF HERNIA IN A COW.

By Mr. G. W. Allinson, *of Pateley Bridge, Yorkshire.*

On the 6th of May, I was first called on to visit an aged cow that had a swelling on the near side, occupying the middle of the ribs from the eighth to the twelfth. She was with calf, and within three weeks of her time; had been milked for the two previous years without having a calf; had twice given birth to two and once to three calves at a time.

Appearance and Symptoms.—She was a large, half-bred, loose-made animal, low in condition. I found the enlargement neither hard nor circumscribed, her appetite good, dejections natural, the pulse regular, and, with the exception of the swelling, not the smallest symptom of disease. After a careful examination, I gave as my opinion that she was with two calves; one of them in an unnatural position, and probably dead, and that this œdematous swelling was merely symptomatic. This, the owner said, was impossible, as the enlargement was on the wrong side to be caused by the calves; and I left him, unable to convince him of the possibility of my opinion being correct. He came the next day, requesting me to see her again, having, he said, made inquiry of every person "likely and unlikely;" but they all declined giving an opinion on the case, except one man, who said it was fellon*; but this the owner would not believe, though the man offered to remove the swelling and cure the cow in two or three days. On a re-examination, I felt satisfied with my previous statement, for the swelling had increased. The place she was in being small, I had her removed into the barn, that she might have plenty of room to lie down and rise in. I ordered her to be well supplied with straw for bedding; took away five quarts of blood, coat

* Fellon—felon. Perhaps some of your correspondents will inform me of the derivation of this word: I have made a little search for it without success.

rather buffy; and gave a pound of Glauber's salts, and half an ounce of nitre.

8*th*.—The medicine during the night had operated freely; her appetite good; swelling much increased, extending into the udder, and forward towards the shoulder; rises with difficulty; pulse regular, countenance cheerful; no indication of pain.

9*th*.—The swelling continues to extend, but no increase of heat on the surface, or alteration in the pulse.

10*th*.—In the same state as yesterday, except that she could not rise without assistance.

11*th*.—Much worse this morning; unable to rise with assistance; great degree of fever; anxious countenance; pulsations 80 in a minute. The swelling had extended forward to the front of the scapula, and backward as far as the hock, including in its range half the udder, which was very hot. I bled until the animal exhibited symptoms of fainting; kept a cloth on the udder wet with diluted camphorated spirit, which in two hours had much reduced the external heat of that part; but as the heat of the body was much higher than natural, with laborious breathing and flushed nostrils, I began to fear there was still inflammation of some part going forward, and (the state of the pulse being such as would not warrant further depletion), I determined to give the following medicine:—Glauber's salts, one pound; camphor and nitre, each half an ounce; and emetic tartar and digitalis, one drachm each, in two quarts of water; and to apply a sinapism to the ribs, after removing the hair.

12*th*.—The medicine had operated on the bowels and the skin. The feverish state in which I had left her on the preceding night appeared much reduced; the pulsations 68, but fuller and softer; the sinapism had done its duty, but there was no alteration in the state of the swelling: repeated the last medicine.

13*th*.—The digitalis was acting on the circulation; there were distinct intermissions of the pulse; the swelling was gone from the shoulder and for some distance along the body, and likewise much reduced on the hinder quarter, but was unchanged on the udder: bowels open, appetite better. I gave half of the last dose of medicine. There was very evident alteration in her appearance this morning for the better: pulse 50, the strokes full, soft, and regular; dejections natural, appetite good, the swelling all gone from the body, and circumscribed on the udder.

I now made a careful examination, and the result was (a confirmation of my worst fears) a most singular case of hernia, and a descent of a part of the uterus into the groin, and even into the udder. The circumscribed enlargement consisted of the head of one calf which was dead, while the one which occupied the supe-

rior position was evidently alive. I gave the owner a detail of the result of my examination, and informed him nothing more could be done for her at present, unless inflammation should again appear. I pointed out the very great danger there was in giving her stimulating drinks for fellon, as I knew he had been advised to do, and recommended him to supply her with what food she required, and wait until her full time was come.

I did not see her again until the 19th, when I found her much changed for the worse: pulse 58, but irregular; cold extremities; eating very little, but moaning and grinding her teeth in a very distressing manner.

I opened a vein, but, after taking about 2lbs of blood, the rapid sinking of the pulse warned me to close it. As her bowels were regular, I administered an ounce of powdered bark. She calved the next day, easier, and with less assistance than, from the nature of the case, could have been supposed: the first calf was alive, the second dead, and, from its appearance, had been from the time I was first called to see her. The uterus contracted in the usual time, and the bowels descended into the place it had occupied in the udder. The animal rallied no more, but languished until the third day, and died. As there was no hope after the descent of the bowels, no medicine was administered.

Post-mortem examination.—Of this I cannot give such a particular detail as I could have wished. The butcher who took off the skin had opened her, and removed the bowels when I arrived at the place: his account was, that the portion of the bowels that had fallen down was in such a state from gangrene, that it would not bear removing. The uterus and all the other viscera were quite sound.

Remarks.—I learned afterwards, that from the 13th to the 17th, there was no alteration in her appearance, when she had a powerful stimulating drink given, was slung for six hours, but having no power over her hind quarters, was gently laid down again: the udder was fomented with hot water so effectively as to remove the skin. She never ruminated after the fellon drink was given, and ate very little.

Thus I present your readers with the particulars of the unsuccessful treatment of (as far as my experience extends) a very rare and singular case. I very much regret not being present when the butcher opened her, as I cannot give any account of the extent of the gangrene, nor the position of the viscera. I put the following questions, from a desire that some of your talented correspondents may examine this report of the case, and present us with their opinion in your valuable publication:—What was the probable cause of the swelling in the first instance, and its subse-

quent rapid progress? Was the treatment to the 13th proper? Was not the stimulating medicine given afterwards highly dangerous? Could any thing more have been done, that was calculated to be of service, after the 19th? Is there a similar case on record?

Before we attempt to reply to the queries of our correspondent, we must state, that this communication from Mr. Allison was sent to us under the modest signature of A, accompanied, indeed, with the name and address of the writer, without which no contribution will find a place in our Journal. Mr. Allison modestly stated, that he was a druggist at Pateley Bridge, and occasionally called upon to prescribe for and attend to the diseases of horses and cattle. Although he was no collegian, and might be deficient in some of the technicalities of anatomical description, he had on record several cases which he had not found described in any of our books; and he selected the present one as a proof of his anxiety to contribute even his humble share to the common stock of veterinary knowledge.

In the plenitude of our editorial power, we have suppressed the anonymous signature. *Non unde sed quid* is our motto; and we thank Mr. Allison for the contribution of a rare and interesting case, and hope to hear from him again.

We find some difficulty in answering Mr. Allison's question as to the etymology of "Fellon, or felon." We can trace it to the French; or rather, we think, that they may have derived it from us. "Felin" is the vulgar or local name, in some of the French provinces, for that disease in oxen which a better nomenclature would rank under the designation of inflammatory fever. Inflammatory fever in cattle is frequently accompanied by anasarcous, or emphysematous, or phlegmonous affection of the cellular membrane; hence the curious crackling under the skin, when certain parts, and the loins especially, are pressed upon. The Saxon name for the skin is ꝑelle (felle); and hence, probably, among the numerous names given to this disease, the term "fellon," in reference to this affection of the cellular membrane. An old writer (Wiseman) calls a species of whitlow felon, as being

a disease of the membrane beneath the skin. The language of Shakspeare is in every one's recollection:—

> "My *fell* of hair
> Would at a dismal treatise rouse, and stir
> As life were in't."

The dealer in hides is yet called a fell-monger.

To his question, "Is there a similar case on record?" We reply, No; not exactly so: but there are cases of inguinal hernia in cattle. Some of them were spontaneous; tumours were found in the groin almost as large as a child's head. Others have been produced by the goring of a beast: but the case most in point is this,—that about the seventh or eight month of parturition, the cow is occasionally subject to an excessive accumulation of fluid in the uterus or calf-bed, to such an extent that, as it is expressed, "the rim of the cow's belly is ruptured," or the tendinous expansions of the obliqui abdominis forced from their attachment to the pubis. We should rather say, that the unattached portion is sufficiently extended to suffer even a portion of the uterus to escape, and become strangulated. The stimulating medicine given on the 17th was certainly unprofessional: but nothing could have saved the animal, except a puncture with a trochar through the abdominal parietes into the uterus to evacuate the superabundant fluid, and possibly, afterwards, the regular operation for inguinal hernia.

EDIT.

ON POISONOUS REPTILES.

By the same.

NATURALISTS inform us, that the viper is the only poisonous reptile in England. If such is the case, What are the effects produced by its bite? What are the best means of subduing its virulence? I am induced to make the above inquiries from the following case, that has lately been under my care.

A valuable draught mare, with a foal on her, was perceived on the morning of the 1st of August to be scarcely able to walk; which, on examination, was found to arise from the near side of her udder being very much swollen. As congestion of the milk was then thought to be the cause, she was removed to the stable,

and the swelling well fomented with warm water, and the foal placed with her. At noon the swelling was found to be on the increase, and the heat of the udder so great, that the foal, though hungry, would not try to suck. The udder was again fomented, and the milk removed: at night she was milked again, and the fomentation repeated.

Next morning the swelling was found to have extended half way along the belly, and backward down the thigh. The wise men of the "glen" were now summoned to give their opinion as to the cause, and they one and all declared she had been venomed. The treatment they recommended was, to cover *all* the swelling with tar, to take away two quarts of blood, and to give two ounces of tar, and four of common salt, in two pints of gruel. The tar as a dressing, and the salt as a medicine, were repeated on the second day, but the swelling gradually extended.

On the 4th, the owner had lost all confidence in that mode of treatment, and applied to me, remarking, that if something effectual was not done for her, she would soon die. He described her as being cold on every part that was not swollen; but the swelling, occupying the whole surface of the abdomen and chest, being exceedingly hot. There was a slight discharge from the side of the udder: she was unable to walk, ate very little, had great thirst and hurried respiration. As it was not convenient to visit her that day, I sent a purging ball (seven and a-half drachms) of aloes; ordered the tar to be washed off with soap and water, a poultice to be applied along the abdomen, and renewed three times a-day; and the cow to be bled freely, or until the pulse was fuller and softer.

On the 6th I saw her. The ball had not operated; she was rather costive; the urine was high-coloured, small in quantity, and passed with difficulty: pulse 55, hard and wiry, the extremities cold, and a slight heaving of the flanks. The great heat of the udder had destroyed the cuticle, and it hung like scorched parchment, in scrolls that were easily detached. I took away six quarts of blood, without producing any alteration of the pulse; blistered both sides of the abdomen, and inserted a seton in the breast. I waited three hours, and finding no change in the pulse, I bled again to the extent of three quarts, when she appeared sick, and the extremities became rather warmer. I then gave a gentle diuretic, and ordered the poultice to be continued, and her food to be green tares.

7th.—No alteration since last night; administered eight drachms of aloes: the blisters were discharging.

8*th.*—The bowels are gently opened, the swelling appears stationary, but is very hot; no improvement in the appetite; pulse

53, very hard: took away six quarts of blood, and repeated the blister.

9*th*.—Appetite rather better; pulse still very wiry; extremities cold; blisters discharge freely: took away six quarts of blood.

10*th*.—Rather better this morning: pulse 50, but fuller and softer; appetite improved; thirst not so great; seton discharges freely; poultice continued.

12*th*.—Rather costive; slight degree of fever: pulse 50, but wiry, swelling reducing: took away five quarts of blood, and gave eight drachms of aloes.

13*th*.—Evidently recovering: thirst much abated; appetite good; bowels regular; pulse down to 40, and soft: seton removed, and poultice discontinued.

From this time to the 18th, the rapidity of her recovery was astonishing; and she is now (the 22d of August), quite well, having gained condition as rapidly as she lost it. There are no remains of the swelling.

Remarks.—This was a case of (in my opinion) general inflammation, or inflammatory fever, occasioned by continued rapid exertion in loading hay on the afternoon of the day preceding the attack; at which time she was not in a state fit for any extension of speed beyond a walk, having been for the five previous weeks in a very rich pasture, and not having performed any labour. You will doubtless, Mr. Editor, say, And what has all this to do with "venomous reptiles?" What it has to do with it, I will state. The owner of the horse, and all his neighbours, firmly believed that the mare had been bitten by some venomous snake, with which, they said, the pasture was infested. I thought I saw the cause in the exertion she had been compelled to make on the preceding day, and treated her as I have described. I have never seen a case of bite by a viper, and am alike ignorant of the symptoms and proper method of treatment. In denying this to be the kind of case they thought, I can assure you I felt, and felt acutely, my possible ignorance on the point: but the supposition, that in that ignorance I may not be alone, and being persuaded that professional men should with knowledge be "armed at all points," must be my excuse for troubling you with this. May I hope that you, or some of your talented correspondents, will favour us with the requisite information?

We are very much inclined to be of the opinion of "the wise men of the glen," and to consider this as a case of "envenoming." The heat and swelling of the udder, and of one side only at first, and "the slight discharge from the side of the udder,"

are very suspicious circumstances. The plethoric habit of the mare, and hard work on the preceding day, and the state of the vessels of the udder from her suckling, might have laid the foundation for greater and more extensive inflammation.—EDIT.

REMARKS ON THE PHARMACOPŒIA IN USE AT THE ROYAL VETERINARY COLLEGE.

[Continued from page 509.]

THE next division of the Pharmacopœia is into that of

INFUSIONS.

At the head of them stands the infusion of that valuable, I was going to say only legitimate and valuable vesicatory of the veterinarian, cantharides.

Infusion of Cantharides.

Cantharides in powder ..... two ounces
Vinegar ..... two pints
Macerate ten days, pour off the liquor, grind the flies with a handful of fine sand, return the whole into the bottle, macerate a week, then strain.

The active principles of cantharides are soluble in water, and in diluted alcohol, and, to a sufficient extent, but not perfectly, in spirit of turpentine; but the use of vinegar as a menstruum, was perfectly new to me, and I somewhat doubt its propriety. At all events, I must make my own vinegar, for the quantity of sulphuric acid with which manufacturers are permitted to adulterate vinegar, would materially injure my infusion. I should have sulphate of canthariden, which would probably be precipitated and lost. A deceased and valued friend, and an excellent practitioner, used the simple watery infusion of cantharides, with sufficient spirit to prevent decomposition. He could produce as active a blister as he liked, and he never moved the hair, or blemished the horse.

Infusion of Tobacco.

Tobacco ..... one pound
Boiling water ..... one gallon
Infuse twenty-four hours, and strain.

I have no objection to this infusion, except that I have never seen it do much good in mange in the horse, and not often in cattle: I have destroyed many a dog with it; on the other hand I have cured many a sheep of the fly and the scab. This is the form under which tobacco should be used as an injection.

Compound Infusion of Tobacco.

Infusion of tobacco ..... two pints
Oxymuriate of mercury; muriatic acid, each .. one drachm
Dissolve the oxymuriate in the acid in a glass mortar, and add to it the infusion of tobacco.

I am not aware of any injurious decomposition here, and we have a more efficacious lotion for mange in the horse, and particularly in cattle. To the dog it is more destructive than the simple infusion; and it does not seem to be improved as an application for sheep.

Injections.

Injection for fistulous Sores.

Oxymuriate of mercury..... one drachm
Muriatic acid ..... two drachms
Water, or rectified spirit ..... five drachms.—Mix.

To this, for indolent ulcers and fistulæ generally, there can be no objection. It may be alternated with the solution of sulphate of zinc, to which, however, it is, on the whole, somewhat inferior.

Liniments.

Liniment for Canker, &c.

Sulphate of copper ..... twelve ounces
Acetic acid ..... six ounces
Treacle ..... three pounds
Melt these together, and when nearly cold mix.

There is a little ambiguity here. The meaning probably is, that the treacle and the acetic acid should be melted together, and the blue vitriol, in fine powder, added when the syrup was nearly cold. I confess that I do not understand the object intended to be accomplished; for we have, after all, an acidulated syrup, holding the sulphate of copper in solution or suspension; and I am yet to learn what advantage I gain by this: however, let it pass. The sulphate of copper, although not the best, is not a bad application for canker, and the vinegar and the treacle can do no material harm; while this may be said in their favour, that we get rid of a greasy application, which is rarely beneficial, and sometimes injurious in canker.

It is a thousand times better than the prescription which follows, and which is also recommended for canker.

Verdigrise..... nine ounces
Alum powdered ..... six ounces
Treacle..... one pound and a half
Boil together, and add sulphuric acid three ounces.—Mix.

This is the Ægyptiacum, with all its obsolete and unchemical nonsense—the round-about, expensive, unscientific way of obtaining a syrup of blue vitriol, and in the highest degree disgraceful to an institution like the Royal Veterinary College.

There used, in my time, to be a liniment in the Pharmacopœia, better than either of these. It was more active, and more likely to be serviceable in a complaint that would not yield to child's play. It consisted of sulphate of copper, alum, and vinegar, with an additional quantity of sulphuric acid. It was a compound with a vengeance,—blue vitriol, and alum, and free acetic acid, and free sulphuric acid; but there was no chemical blunder; and it was a powerful application to keep down the fungus. We apprehend, however, that these liniments are discarded by most experienced practitioners; and that for the destruction of the fungus, and the formation of healthy granulations, the knife, the chloride of antimony, and firm and equable pressure, are alone resorted to.

Tar Liniment.

Oil of tar (rectified)
Common oil or sperm oil, each..... one pint.—Mix.

As a dressing for wounds, or for the feet, and particularly as suppleing the horn, and preserving and restoring hard and brittle feet, this liniment is excellent.

Turpentine Liniment.

Oil of turpentine, and olive oil, each..... one pint.

This is a very good digestive liniment, and forms a useful sweating blister for old strains, or callous formations.

Mixtures.

Thrush Mixture.

Liquid tar ..... four ounces
Sulphuric acid..... one drachm and a half.—Mix.

By liquid tar is meant, the vegetable tar extracted from the fir in the act of burning. It is the pix liquida of the druggist; and the merest tyro knows that when sulphuric acid is mixed with it, a sudden, and in some cases violent, decomposition takes place. The black oil of the farriers is the result of the partial combustion of the turpentine by its union with the acid. If the tar were previously good for any thing in the treatment of thrushes, it is now strangely changed by the union of the oxygen of the acid with its carbon and hydrogen; and if the sulphuric acid were previously good for any thing, it, too, must be changed in its properties and effects, when it becomes a mere sticky mass, an oxygenized resin or bitumen.

If the mineral tar, or naphtha, be used, the decomposition is striking enough, but not carried to such an outrageous extent. The day of veterinary science has too much advanced to be longer dimmed by follies like these. The blackness of the mixture is a fit emblem only of that state of obscurity and error to which we will never more return.

Scalding Mixture for Poll Evil.

Oxymuriate of mercury ..... one drachm
Muriatic acid ..... two drachms
Olive oil, boiling ..... one pint
Dissolve the oxymuriate in the acid, add it to the boiling oil, and inject as soon as possible.

I have hitherto spoken of the ignorance displayed in the College Pharmacopœia; and sorry am I now to denounce the appearance at least of its too frequent accompaniment, brutality, absolute brutality. "*Boiling-oil*,"—not an aqueous solution, although that would be torturing enough at the boiling heat—not even oil of turpentine, although that would exceed the heat of boiling water by 100 degrees; but—I write it with disgust and loathing—boiling oil, 390 degrees above the temperature of boiling water. This admixture, worthy only of demons, is selected to be poured into the deep and morbidly sensible and irritable sinuses of the neck or the withers. I read in other books of resin, and lard, mixed with certain caustics, being "melted and poured into the ulcer *hot*." Hinds composes one of his scalding mixtures with *spirit* of turpentine, which boils at the same temperature with alcohol, 176 degrees; the other he mixes with alcohol; Bracken, with *oil* of turpentine; Blunt, spirit of wine and oil of turpentine; Bartlett, the same; Blaine, *oil* of turpentine; Lawrence, *oil* of turpentine; even Ephraim Blaine, spirit of wine. Two of these writers recommend that the mixture should be applied *hot*, one *very hot*, and the others *scalding*; but in the pharmacopœia of the college alone do we read of *boiling oil* being used, three or four hundred degrees above the most horrible admixtures of the village farrier, and a menstruum most tenacious of the high temperature it is capable of acquiring; and, as if this were not enough, corrosive sublimate and muriatic acid are added, to continue the torture after the oil has cooled*.

* Solleysel recommends an operation almost as cruel: after having directed that every portion of fungus should be cut away, and "the corrupt flesh carefully separated from the sinew," and, above all, care being taken "to give the matter a vent to keep it from stagnating," he proceeds: "Having thus freed the sore from impurities, and cut off the corrupt and putrify'd flesh, strew the place with red-hot ashes, taken out of a burning fire, continuing to cast on the ashes till the blood be stopt. Let the sore remain untouch'd till the next day, and then wash it with the water of

I have some indistinct recollection of its having been openly acknowledged that *boiling oil* was *purposely selected*, on account of its high degree of temperature, and the slowness with which it cools, but I would rather persuade myself it is to be traced to that ignorance of chemistry, which so many articles in this precious farrago so plainly evince. The compiler of the Pharmacopœia did not know that resin would melt at 150 degrees of temperature, and that it would be scalding hot at 200, while oil would not boil at a lower heat than 600. The word *oil* was substituted for *resin*, and *boiling* for *scalding*, either inadvertently, or to avoid the appearance of servilely copying other prescriptions; but he did not, could not dream of the additional and perfectly unnecessary torture he was inflicting on the poor beast.

These scalding mixtures, however, although of 400 degrees of heat less than this, are getting into disrepute and disuse among humane and experienced practitioners. If every sinus is carefully bottomed, and a seton with *a depending orifice* passed through each, so that the pus can run out as fast as it is formed, although it may be necessary to stimulate the surface of the wound, and, occasionally, we may be compelled to resort to an application that will cause considerable pain, there will be no necessity for inflicting on the animal the most horrible tortures, and, least of all, will there be need to kill instead of stimulating the part. Have we not in these applications the explanation of many an obstinate case of poll evil and fistulous withers? Instead of rousing the parts to healthy action, we have, by our *boiling oil*, inevitably and irrecoverably destroyed their vitality: we have increased instead of arresting the progress of gangrene and of death.

But here, Gentlemen, I will for the present break off, for I am scarcely in a proper frame of mind to do calm and equal justice to the remaining articles of the Royal Veterinary College Pharmacopœia. I must forget a little that the head and source of that profession which can be legitimately founded on "the union of science and humanity alone," has ordered a degree of torture to be inflicted on the horse which the most brutal farrier, in the darkest age of ignorance and brutality, never dared to do.

A PRACTITIONER.

a *smith's forge*, luke warm, or with warm *wine*, *urine*, or the *second water*, and powder it again with hot ashes. Repeat the same two or three times once in twenty-four hours; after which you will find the sore in a very hopeful condition, without swelling, heat, or any other symptom that may retard the cure; for the salt contained in the ashes is heated and melted by the moistness of the sore, and, being a kind of *alkali*, it destroys the *acid* and *corrosive humour*, that falls by way of defluxion upon the part, and, that being destroy'd, the swelling abates and the heat vanishes."

ON THE HOOSE IN CALVES.

To the Editors of "The Veterinarian."

Gentlemen,

May I ask through the medium of your Journal the best method of treating the disease among calves called the *Hoose?* The symptoms are, a difficulty of breathing, cough, and putting out the tongue: the *cause*, evidently a worm engendered in the *trachea* and bronchial tubes. Those kept in moist situations are most subject to it, and this summer it has been unusually fatal in my circuit. I have often succeeded by giving ol. tereb. in ounce doses continued for four days in succession.

An early answer will oblige

A Farrier,
and Constant Reader of your Publication.

Doncaster, 19th Sept. 1831.

THE CATTLE, SHEEP, &c. OF CORNWALL,

THEIR ORIGIN, PRESENT CHARACTER, MANAGEMENT, AND DISEASES.

By Mr. W. F. Karkeek, *V. S., Truro.*

Tin, fish, and copper, have ever been considered the staple commodities of the county of Cornwall; whilst agriculture has been generally viewed as a secondary object of pursuit. Pasturing cattle and cultivating the soil were undoubtedly the common employments of the aborigines; but there is great reason to believe that their attention was not long confined to the vegetable productions of the earth, after they discovered that greater riches might be torn from its bowels than reaped on its surface.

Very little can be offered on the state of Cornish agriculture before the Roman conquest, except mere conjecture. When Cæsar invaded the island, the Danmonians (the inhabitants of Devon and Cornwall) possessed great numbers of cattle: it was their practice to keep large herds upon the uninhabited grounds that skirted the confines of their country.

They are supposed to have derived great advantages in the art of agriculture from their Roman masters; for though conquest strode before the Roman legions, yet in their rear the arts and sciences made their appearance:

"She bow'd the body, but enlarg'd the mind."

Under their direction the Cornish considerably extended their pasture grounds, by laying open the woods on the hills, and cleansing the lowlands from their weeds and briars; so that soon, very soon, the "shepherd and the huntsman, who had pastured their flocks and herds upon the heights, to whose songs the *jugum ocrinum* had re-echoed, now descended to the vallies, to meadows of luxuriant herbage."

An employment of such importance to their well-being, and so honourable to the individual, it might have been supposed, would have been readily embraced by all those who aspired at honour and distinction; but the contrary happened. When the Romans returned to their own country, agriculture suffered a decline; the Cornish neglected their fruitful fields, and all their skill and industry were exerted in bringing from the bowels of the earth

"The ores that speak the county's sterling praise;"

and thus the arts most beneficial to society in a few years fell into such neglect that Cornwall was actually obliged to be indebted to Devon and Somerset for *bread and cattle*.

"The people," says Carew, "devoting themselves entirely to tin, their neighbours in Devonshire and Somersetshire hired their pastures at a rent, and stored them with the cattle which they brought from their own homes, and made their profit of the Cornish by cattle fed at their own doors. The same persons also supplied them at their markets with many hundred quarters of corn and horse loads of bread."

But this state of things did not long continue: mines are very uncertain; and some of the principal ones failing, and the inhabitants increasing, they were obliged to turn their attention to husbandry. Success crowned their endeavours; for in the latter part of the reign of Elizabeth they were capable of not only supporting themselves, but were enabled to export a great quantity of corn, &c. to foreign countries. And as the arts of agriculture increased, and the blessings they afforded became more generally known, the inhabitants applied themselves assiduously to the cultivation of the earth, and to meliorate, and to bring to perfection with the greatest possible care, all those valuable properties with which nature has endowed the inferior animals for the subsistence and comfort of man.

"Industry approach'd,
And raised him from his miserable sloth:
His faculties unfolded; pointed out
Where lavish Nature the directing hand
Of Art demanded."

In Cornwall, as in most other places, there is found a pecu-

liar breed of cattle indigenous to the soil: they are animals of a black colour, with short horns, coarse bones, and large offals; are of a very small size, but are admirably fitted to endure the changeable temperature of the climate (the west of Cornwall) where they are chiefly found, living in the summer on the coarse grounds and commons, and in the winter months chiefly upon heath and furze.

The contrast exhibited between them and the prevailing breed of the county is great. It would be a difficult task to attempt to convey any very correct idea of the shape of these by words. They may be said to approach to what is generally considered as perfect; possessing neat and compactly-formed heads, with bright and prominent eyes, and upright horns, resembling in the turn of the horn the wild cattle of Chillingham Park. Their necks are somewhat thin, gradually narrowing from the breast towards the head. Their chests are deep and capacious, with well-proportioned legs. They possess a tolerably sized barrel, and are well made in the hind quarters, being *deep*, *full*, and well fleshed downwards. In appearance, they bear a great resemblance to *their progenitors* the *North Devon*, possessing the same coloured hair, the bright dun muzzle, and ring round the eye.

They vary much in shape and stature, in the different districts of the county. In the west of the county the breed is found considerably smaller than in other parts, but are all well made, formed as it were for the yoke, have good hoofs, and work light and active. They also possess a property that is particularly worthy of notice in our changeable clime, where

"The smiles of summer and the rage of storms"

succeed each other in a few hours, viz. hardiness of constitution. They also arrive quickly to maturity, and fatten when young, if well fed. This kind may be considered as the *prevailing breed of the county;* they are the produce of a cross of the indigenous breed with the North Devon.

The cows also are chiefly of the Cornish and North Devon breeds, although of late years a number of the Guernsey and Jersey cows have been introduced. A breed between the latter and the Cornish is commonly used, and the cross is thought to possess the rare qualities of abundance of milk with an increase of size. The Durham breed have been lately introduced by that eminent and spirited breeder, J. P. Peter, Esq. of Creegmurrion; they appear to have succeeded well in one or two grazing districts. A cross between the Durham bull and the Cornish cow is considered to be profitable for the dairy and the butcher. But no kind appear to be in such high request by *farmers* as the *North*

Devon; this breed appearing to approximate, and to be better adapted to the Cornish soil than any other. The *cheese* that is made in the county is very little, and that little of a very bad quality. But she is notorious, with her sister county (Devonshire), for that well-known production of the dairy "*clotted cream,*" so termed in consequence of the thick consistence to which raw or unscalded milk is reduced, by a peculiar operation, imperfectly practised everywhere else, though many attempts have been made.

The Danmonians were famous for making curds and butter of their milk, from the earliest times; "*densantes in acorem jucundum et pingue butyrum.*"—PLINY.

"In the eastern counties it is customary to skim off the cream from the milk without its being previously scalded; but in Devon and Cornwall, milk intended to produce either cream or butter, is strained through a cloth or bunting sieve into shallow earthen or block tin pans, containing from two to five gallons, wherein it remains for twelve hours; after which, the pans, if there be more than one, are severally placed and kept over a slow fire, until the cream rises to the top in a wrinkling furrowed pellicle, about the eighth part of an inch in thickness. They are then removed from the fire, and taken into the dairy, in which, as the milk cools, the cream becomes firm and clotted*."

The Cornish oxen, under kind and generous treatment, are easily familiarized and rendered docile. The Cornish plough has from time immemorial been worked by a team of oxen, occasionally with horses before them, but oftener without any. They are likewise used in carriages, for which we have butts and wains, instead of carts and waggons, as being more suitable both to our narrow roads and hilly lands. They are always worked in yoke, and are remarkably tractable, receiving names according to their colour or supposed properties; as brown, sprightly, hearty, tyrant, &c. &c.

But the practice of employing cattle in husbandry is of late years getting out of practice, particularly among our most respectable farmers, where the most approved methods of husbandry prevail. Our parochial roads, instead of being narrow and intricate as they were formerly, are now tolerably good, with few exceptions, throughout the county. Carts and waggons drawn by fine teams of horses are now commonly employed, and men who are worthy of the name of husbandmen never employ cattle on the roads. Cornwall not being a grazing county, and therefore not adapted to the purpose of bringing forward cattle for the market, numbers of them are purchased at the different fairs by Somerset

* Gilbert's History of Cornwall.

and Devonshire graziers; and when taken into a rich soil, they soon fatten, and turn out profitable to the butcher.

Our cattle, though in general healthy, are troubled occasionally with *Diseases*.

The Red Water—Occurs oftentimes: bleeding combined with purgatives, sedatives, and tonic medicines, are the principal remedies. I have been very fortunate in treating these cases, but they commonly prove fatal under the management of our country farriers, who always commence their "cure" by the administration of strong diuretic medicines.

> "Oh heavens! that such *empiricks* thou 'dst unfold,
> And put in every honest hand a whip
> To lash the rascals through the world."

A very common cause of this disease is indigestion. It is also very common to see it in cows of weak constitutions, and that have had many calves. In the latter case, it is not accompanied with much inflammation.

Blain.—I rather fancy that the disease termed "blain" in your circular, is what is commonly called in Cornwall the "*Head flay.*" (It is much to be lamented that a classification of the diseases of cattle has not been attempted by some competent person.) This disease is characterized by a swelling of the tongue and sublingual glands. The animal speedily dies from suffocation, unless the usual remedy, deep incisions of the vesicles along the lateral and inferior parts of the tongue, which are afterwards well rubbed with common salt, be practised. This practice I have generally pursued, with the addition of bleeding and a gentle aperient.

Blood,—Commonly called in Cornwall the *felon,* sometimes *quarter evil.* This disease appears to have increased in Cornwall within the last twenty years, as in the earlier part of the practice of my late grandfather, Mr. William Floyd, this disease was scarcely known. I believe this to be owing to the introduction of several artificial grasses before unknown in the county. Yearlings or animals from one to two years old are most susceptible of this disease. The cause is generally attributed to feeding in too luxuriant pastures, or from the sudden removal from a scanty to a stimulating living. This disease requires a bold, prompt, and persevering mode of treatment, in order to insure a successful termination. I have met with few cases where I have had an opportunity of seeing the first stage of the disease, for in almost every case it had assumed the putrid type before I have arrived.

Hoose,—Commonly called in Cornwall the *husk.* Three years since I met with numbers of cattle labouring under this disease.

I met with few before, and none since. These cases all yielded to a dose or two of turpentine, four ounces in a dose, given on the first appearance of the disease, following it up by a slight bleeding and a gentle aperient.

Diarrhœa.—I have succeeded in relieving many animals labouring under this complaint, until they have been fit for the butcher, but no farther. In most other cases the disease has returned with double its former virulence.

Dropping after Calving.—This disease is peculiar to cows in high condition. Most of the cases that have fallen to my share have terminated successfully. I commence the treatment by repeated bleedings either copiously or moderately, according to the condition of the beast, and follow this up by mild laxatives and clysters, tonics, &c. &c.

Sheep.

Those animals being more exposed to the influence of soil and climate than oxen, they shew a more considerable variety in their appearances.

Cornubia's soil in this respect displays features and charms peculiarly her own. Here perennial verdure meets the eye, and there scenes all naked and sterile. Here the woolly flock may be seen grazing in fields with genial verdure spread, and there picking up a scanty living,

> "Where scarcely aught awaits the offended sight,
> But gorse-clad moors, and hills of tiresome height."

On such a chequered soil, we may reasonably expect to see a great diversity among animals whose improvement chiefly depends on the food and shelter that is afforded them. Such is the case. The sheep on the hills and sandy districts still retain the form, the size, and the habits which the uncontrollable influence of their situation has impressed on them; whilst those in the best cultivated districts, where nature wears "her loveliest, greenest vest," are equal to the Dishley breed from whom they originate. Mr. Carew in his Survey of Cornwall, published in the year 1602, says, that "formerly when the shire, through want of good manurance, lay waste and open, the sheep had generally little bodies, and coarse fleeces, so as their wool bear no better name than '*Cornish hair*,' and for such (from all ancientry) been transported without paying custom." Worgan describes the true Cornish breed of sheep very correctly: "they have," says he, "grey faces and legs, coarse short thick necks, stand lower before than behind, narrow backs, flattish sides; a fleece of coarse wool weighing

about two or three pounds; and their mutton seldom fat, weighing from eight to ten pounds per quarter."

Another kind of sheep, which may be considered as crosses of the prevailing breed with the former or old Cornish, are to be found in great numbers upon the downs, heaths, and moors; they are a very hardy and active race, living out both in the summer and winter. Their mutton is well tasted, and the quarters weigh about two pounds each more than those of the former breed. They bear fleeces from two to four pounds each of moderate quality; and some of them have horns. Another species of sheep is found among the towans or sandy hillocks; their fleeces are equal to the South Down wool, and for sweetness of flesh no sheep in England can exceed. This quality is attributed partly to the sweetness of the pasture, and partly to the land being covered with myriads of small shell-snails, which they lick up with their tongues.

We now come to the *prevailing breed* in the county, which may be considered as made up of crosses by introducing rams from Exmoor, Dartmoor, North and South Devon, Dorset, Gloucester, and Leicester sorts. Thus numerous have been the experiments at different periods to improve the old Cornish sheep; but none have answered so well as the new Leicester or Dishley breed. On their first introduction, both farmers and butchers were prejudiced against them; but at this period, either the pure Dishley or crosses with them, are found on every farm that will admit of them.

The adaptation of animals to soils was never better consulted than by the introduction of this breed into Cornwall. They are easily distinguished from the other long-wooled breeds, by having more prominent and brighter eyes, finer and smaller heads, straighter, broader, and flatter backs, more capacity and depth of chest, rounder in their bodies, finer in their bones, and thinner in their pelts. With respect to their comparative value, the crosses of the new Leicester weigh from twenty to twenty-five pounds per quarter; some of them are much heavier, from twenty-five to thirty. The market town of Truro is famous for its fat mutton, which is fed in the neighbourhood: their long wools are eagerly sought after by the principal staplers, and sent into the north of England markets. The fleeces in the "grease" weigh from seven to ten pounds each; some flocks average from seven to twelve pounds each.

Diseases.

Mr. Carew observes that the Cornish sheep are freer from disease than most others; the climate appears suitable to them, and

well calculated to meliorate the quality and the quantity of their wool. At the period that this gentleman wrote, the foot-rot was not known; and I believe that the disease was not seen in the county before the introduction of the Dishley breed: it is considered contagious, and chiefly occurs upon good pasture.

The *scab* is a prevailing disease, and is generally cured by rubbing upon the diseased parts a liniment, composed of sulphur, spirit of turpentine, and fish oil.

The *rot* has engaged the attention of most of our scientific farmers; but I believe that neither its nature nor its cause have been discovered by them. The Cornish farmer calls this disease the "*iles*." It is observed to attack those sheep that chiefly feed in moory and boggy places. On this sort of land grows abundance of "rosa solis," to which our country people also give the name of "*iles*," to the eating of the leaves of which they attribute this disease.

When we consider that the all-bounteous Providence has given to every animal its peculiar taste, by which it distinguishes the food proper for its preservation and support, it seems very difficult to discover, on philosophical principles, why, or in what manner, the leaves of this plant should produce this disease; but the case appears very plain, *if*, as is generally believed, that the eggs of a certain worm are laid on the plant, which produces in the livers of those sheep that eat them great numbers of animals, flat and round, like a plaice: this is the prevailing hypothesis in my neighbourhood.

I have conversed with several judicious farmers on the subject of hydatids. They appear to be at issue as to the cause; some believing them to be produced by animalculæ, whilst others attribute their appearance in the liver and brain to their being generated in those organs. A very important and interesting question arises from this, as to the power in deranged animal substance of forming other bodies, and those endowed with vitality; for there is no doubt of their being alive, having oftentimes seen them move when taken out of the liver and put into warm water, where they retain this power of motion for many hours after the death of the sheep.

With respect to the cure of this disease, if the vis medicatrix naturæ is not sufficient to effect a cure, the patients mostly fall a sacrifice to their ravages. Our graziers chiefly depend on removing the sheep to a dry situation, or keeping them warm and sheltered, with dry food, in the farm-yard. Some who live near the sea turn their sheep affected with this disease into the salt marshes, when, if the disease has not long existed, they get cured.

I have heard it stated as a singular fact, that sheep fed on salt marshes never produce the rot; salt being pernicious to most insects.

Pigs.

The original breed of pigs in Cornwall were of a white colour, of a large size, long-sided, and razor-backed. This kind has been crossed with the Devon, Suffolk, and Leicester breeds, which have taken off length and sharpness, and added breadth and depth. Some crosses have been made with the Berkshire kind: this has introduced a breed which are distinguished by their tawny colour, spotted with black, large ears hanging over the eyes, thick, close, and well made body, short legs, small bones, and a disposition to fatten. Some crosses also have been made with the Hampshire breed, with success; but of all the various crosses (for Cornwall being so near the sea has had the advantage and disadvantage of several foreign breeds), none seem so much prized as the Chinese kind; for in breadth and depth, health of constitution, disposition to fatten, and flavour of meat, none are equal to them.

There are many places in this county where this species of live stock are kept in considerable numbers; yet they are not generally looked on by farmers as a species of emolument, except where they can be maintained on what would otherwise be thrown away. In this instance they prove that no part of the creation is useless. The hog alone devours the refuse of all the rest, and contributes not only to remove what would be a nuisance to the human race, but also converts the most nauseous offals into the richest nutriment. Pennant compares, not unjustly, the hog to a miser, who is useless and rapacious in his life, but, on his death, becomes of public use, by the very effects of his sordid manners.

OBSERVATIONS ON THE

APPLICATION OF CHEMISTRY TO PHYSIOLOGY, PATHOLOGY, AND PRACTICE.

By Wm. Prout, M.D., F.R.S.

LECTURE II.—(Concluded from p. 501).

On Diseases connected with the Derangements of Staminal Principles.

On the Operation of Remedies on different Staminal Diseases.

There is an interesting and important point of view in which the preceding subject may be yet considered, namely, the dis-

eases—the staminal or constitutional diseases—if I may be allowed the expression, connected with the imperfect development of the principles composing animal bodies, or the derangements to which they are liable.

First, *Of the Diseases connected with the Saccharine Principle.*—Of all the staminal diseases, those more immediately connected with the saccharine principle may be considered in general as the most formidable ; and if fairly established, they seldom terminate but with the life of the patient.

Of Diabetes.—In this disease, the essential and merorganizing changes seem to be more or less suspended, while the reducing power of the stomach goes on even more rapidly than in health. The food, therefore, is quickly dissolved and absorbed ; but as the meroganizing processes do not take place at all, or only very imperfectly, the products formed are unfit for the purposes of the animal economy, and consequently are ejected from it in self-defence. This view of the nature of diabetes places the principal errors in the digestive and assimilating functions ; and no one who has studied the affection can, I think, for a moment hesitate to assent to this view : but the kidneys, also, are undoubtedly involved in it ; and as the natural action of these organs, as will be more particularly noticed presently, is of a dismerorganizing character, these undo what little had been done by the assimilatory organs, and the result is, that the alimentary matter is thrown out in the crystallizable form.

A saccharine condition of the urine, in a minor degree, is by no means an unusual occurrence in various forms of dyspepsia, more especially in old gouty subjects ; and in this state it can hardly be considered as dangerous, at least not more so than many other urinary derangements : but when completely established in the form of diabetes, I need not say that it may be considered as one of the most formidable diseases to which humanity is liable. The quantity of urine may, indeed, be easily reduced in most cases within proper limits, by judicious treatment ; but in every instance in which I have hitherto had an opportunity of examining it, the saccharine tendency has remained in a greater or less degree, or has only given way to something still more formidable, as irremediable phthisis, or, in one or two cases, diseases of a malignant tendency. Diabetes is not often attended by any visible organic disease, probably on account of the very soluble nature of sugar : but if, in the ordinary state, this principle was a solid instead of a liquid, there is little doubt that morbid growths, or organic diseases, would be the consequence.

Another disease, or set of diseases (for there are many), originating in the saccharine radical, is connected with its acidification,

or the formation of oxalic acid. Some of these are remarkable and very characteristic. In the first place, the formation of oxalate of lime in the shape of urinary calculus, may be mentioned as one of the most usual and obvious; and it has been principally by close attention to the phenomena and symptoms usually accompanying this form of concretion, that I have been gradually led to the little knowledge I possess on this subject. One very important class of affections, frequently connected with the formation of oxalic acid, are certain skin diseases; these, from slight scaly crusts, down through every intermediate stage, to boil, carbuncle, and even malignant forms of disease, as fungus hæmatodes, often accompany a tendency to saccharine diseases, either in the shape of sugar or oxalic acid, or more frequently both. When, in particular, the oxalic diathesis prevails, it is rare not to find the skin more or less affected, either in the shape of scaly spots on the arms or legs; or troublesome boils, which, in advanced life and more inveterate forms of the affection, sometimes assume the shape of carbuncles. I have several times seen impetiginous affections accompanied by a temporary saccharine condition of the urine, and, after this has disappeared, succeeded by malignant disease of the bladder, of the kind usually termed fungus hæmatodes. Even in those cases in which there is not actual disease, when oxalic acid is generated in the system to much extent, the skin often assumes a peculiar character difficult to describe, and a livid tint mixed more or less with green or yellow; and the venous blood is often of an unusually dark colour. Together with this state of things there is generally extreme nervous depression or irritability, accompanied by flatulency (arising from the extrication of immense quantities of azote), irregular action of the heart, and a state of mind almost bordering on insanity. And in those predisposed, any thing producing great nervous depression, or anxiety, seems sometimes capable of inducing the affection; certainly, at least, of much aggravating it, when it already exists. There is one variety of phthisis connected with affections of the saccharine radical, and it invariably proves the most irremediably fatal. When large calculi of the oxalate of lime exist in the kidneys, they are very apt to be accompanied by organic disease, and the blood voided with the urine is generally of a very dark or greenish colour. If our time permitted, several other curious circumstances connected with the present subject might be pointed at; but I hasten to consider another set of diseases connected with derangements of the saccharine radical; namely, the formation of *acetic acid*.

One of the most frequent diseases connected with the formation of acetic acid is a variety of the fever usually termed hectic. The

constitutional disturbances connected with this form of disease are too well known to require description here; and every one must have noticed the strong sour smell of the perspired fluid which is sometimes thrown off by the skin in the colliquative sweatings, and which is produced by acetic acid. Occasionally all the secretions contain more or less of this acid; and I have more than once smelt even the breath impregnated with vinegar, and found the saliva strongly acid from the same cause, a short time before the death of a patient.

I have been informed that the fluid thrown from the stomach in yellow fever, and termed the *black vomit*, is often strongly acid; and some circumstances induce me to believe that the acid is, in part at least, the acetic, but I have had no opportunity of verifying this notion.

Such are a few of the most usual and important diseases connected with derangements of the saccharine radical. There are many others of a less obvious character; but, perhaps, it may be observed that, in general, almost all the more important organic diseases, of a chronic and malignant character, are more frequently connected with this principle than with either of the others; probably no less from the nature of the matters generated than from the originally less vital character of the textures themselves, in which this principle predominates.

Of Diseases connected with the Oleaginous Principle.—Two instances have come to my knowledge in which large quantities of fatty matter have been given off from the bowels. These, of course, have been passed in the fluid state, but on cooling have become solid, and assumed the usual appearance of stearine. In both these cases the intestinal canal was found diseased after death. In the one case the colon was particularly affected; in the other, the duodenum. The last case occurred to Dr. Elliotson at St. Thomas's Hospital, to whom I am indebted for the particulars. The patient was diabetic, and latterly phthisical. This affection may be considered, in some degree, as analogous to diabetes, the oleaginous being substituted for the saccharine radical. Indeed, in diabetes the fat often undergoes a remarkable change in its appearance.

I need scarcely more than allude to the well-known fact of the frequent existence of steatomatous or fatty tumours, the occurrence of which in various parts of the body may be considered as morbid depositions, little connected with life, and generally quite free from malignant tendency. When they occur, however, in habits in which the saccharine radical is likewise affected, they often appear to add to the malignancy of the affection; and under these circumstances great quantities of fatty, brain-like matter,

are thrown out, in conjunction with the other diseased materials.

There are several subjects of great interest connected with this principle, which, if our time admitted, might be dwelt on—such as the presence or absence of obesity at particular periods of life, and under certain conditions and diseases of the animal economy; certain affections usually termed *bilious*, and especially the formation of *cholesterine*, a modification of the oleaginous principle, the chemical properties of which satisfactorily explain the formation of biliary concretions, &c. But I hasten, in the last place, to consider very briefly the

Diseases more immediately connected with the Albuminous Principle.—Sometimes the albuminous matters pass through the kidneys unchanged, and appear in the urine either in the shape of chyle, and constituting the disease termed chylous urine (to be more particularly described in our next lecture), or in the shape of serum of the blood. Sometimes the lithate of ammonia is mixed with the albuminous matters, and I have seen a series of substances in the same urine, apparently in a variety of intermediate grades, between albumen and lithate of ammonia; thus clearly proving the origin of the latter compound, and the dismerorganizing power of the kidneys. Hence, in ordinary conditions of the animal economy, either in its natural state or under the excitement of fever, &c., it may be inferred that the imperfectly formed or dismerorganized albuminous matters are principally got rid of in the shape of lithate of ammonia in the urine. Thus, if an individual, otherwise in good health, eats a little too much, especially of animal food, the urine afterwards will be generally found loaded with lithate of ammonia and the matters usually accompanying it, and which, if he has been indolent, and the weather cold and chilly, will generally appear in the form of a sediment; but if he has been active, and the weather warm, will be usually retained in solution. So also when a portion of the albuminous matters already existing in the system is rendered unfit for the purposes of the economy, by feverish or inflammatory attacks, or any other cause, it is usually got rid of in the same way. These circumstances are liable to a variety of modifications, in different ages and in different constitutions, but they present, in general terms, an explanation of the appearance of lithate of ammonia in the urine.

Another very usual and obvious state of disease connected more immediately with the imperfect development and deficient merorganization of the albuminous principle, is *struma*, in all its different forms and degrees. The curdy matter so well known to exist in these affections is nothing more nor less than the imper-

fectly devoloped albuminous matters which had escaped the merorganizing process in a great degree, or otherwise had not been raised to the healthy standard fitting it for the purposes of the animal economy. If this ill-developed principle remained in solution, it would, no doubt, like the sugar in diabetes, be thrown off by the kidneys, or in some other way, and thus the constitution would escape at least its secondary effects; but unfortunately it retains so much of the properties of albuminous matter as to undergo a sort of coagulation, and thus assume more or less of a solid form, in which state it is much more difficult to be got rid of; and hence its proneness to appear in the form of morbid growths, or deposits, giving rise to unhealthy abscesses, &c. more especially in those parts where inflammation from any cause has been excited, and where consequently the motion of the blood in the capillaries has become impeded. From what has been said, it will of course be anticipated that I am disposed to agree generally with those who think it probable that the origin of strumous tubercles in the lungs may be often ascribed to depositions of imperfectly developed albuminous matters; as these organs ought, from the circumstances in which they are placed, to be peculiarly liable to such depositions, particularly at that period of life when the constitution is about to become stationary, and before other outlets to these unnatural matters have been established; for strumous habits, perhaps more than any others, afford the most striking illustrations of the powers of the animal economy to adapt themselves to circumstances; and we often see, sometimes early in life, and sometimes later, as about the time of puberty or soon after, the kidneys, or the bowels, or both, assume, as it were, an extraordinary action, and afford an immediate outlet to all the ill assimilated and other matters taken into the system: the only organs occasionally suffering, particularly in advanced life, being the kidneys, or other parts through which the drainage takes place. By individuals thus constituted, enormous quantities of food and drink of every description, but particularly of animal food, are usually taken, and indeed required; and which they gobble down with an impunity perfectly astonishing to the individual possessing organs of weak powers, and who is not provided with the necessary accommodation for getting rid of his crudities. Such people, if well fed, and if they take plenty of exercise, often live to old age; but if indolent, they are apt, in advanced life, to become subject to morbid deposits, or growths, constituting various forms of organic disease.

There is another set of substances to be mentioned, connected with the albuminous principle—namely, pus. That pus, in many of its forms, is chiefly of albuminous origin, cannot be doubted;

but it is subject to such great variety in its conditions, that they can hardly, perhaps, be all explained on the same principles. The formation of perfectly healthy pus from an open granulating surface, admits, I believe, of explanation on principles connected with the composition of albuminous matters; but as these have not yet been mentioned, for the reasons already stated, I shall not enter on the subject further at present.

It may be observed, that the above observations are to be understood to apply principally to those well-marked instances in which the error chiefly lies in one principle, and the others are affected in a secondary degree only; but I need scarcely remark, that it seldom or ever happens that one principle alone is affected without involving, in a greater or less degree, the others; and these combinations often give origin to a variety of modifications of disease.

There is yet another interesting point of view connected with this subject, which we have only time at present barely to allude to—viz., the adaptation of remedies to constitutions in which the different staminal principles are affected. In a practical point of view, this is often a matter of the utmost importance, and one upon which, at some future time, I hope to offer some remarks.

Lastly, it remains to be mentioned, that the old doctrine of *temperaments* is closely connected with, or dependent on, the prevalency of one or other of the staminal principles.

CASE OF GLANDERS (?*) IN THE HUMAN SUBJECT.

By J. L. Levison, *Esq.*, *Surgeon, London.*

Having seen, in some of the late numbers of "*The Lancet*," two or three interesting papers on the subject of the glanders, wherein it was contended by one writer that it was infectious, and by another that it was not, it occurred to me that the following case, as far as I could collect evidence of its history, did certainly go far to prove, that the virus of an affected horse will produce specific effects in man, and that, when absorbed into the system, the consequences are of a distressing nature, producing, in some instances, death; but probably the virulence of the poison and the results may be modified by the age, temperament, and bodily health of the affected person.

* The note of interrogation was very properly added by the Editor of *The Lancet*. The disease had not one character of glanders. It was evidently phrenitis; but it is a curious case, and interesting to every horseman.—Edit.

As the case is one of a peculiar kind, I shall preface my account of it with some brief remarks on the history of the sufferer, who was a coachman, named Norbrook. In person he was short, thin, and very dark (of a bilious temperament), and the son of a man of colour, who had held also a similar elevated station on the road for many years. "Bill Norbrook," as he was cognomened by his *chums*, was always civil and obliging to those who travelled with him, and the son was, in this particular, the counterpart of the father. Young Norbrook had an early predilection for coach-driving, and as soon as it became possible for him to handle the reins, he was initiated as one of "the order of the whip." I mention this circumstance, as it will be shewn in the sequel, how strongly he illustrated the adage, "the ruling passion strong in death;" for in his last moments, it will be seen, that his soul was engrossed in his avocation, as he continued driving his *tits*, until death drove him full-gallop to another world.

Bill Norbrook, jun. (the subject of this notice) latterly drove the Norwich and Wisbeach coach. On the night on which he received the fatal infection, he had arrived in Wisbeach very much fatigued. Having refreshed himself, and being sleepy, he drew himself to the kitchen fire, and in order to enjoy his nap with more luxurious ease, he unbuttoned the knees of his breeches, and fell fast asleep, the soundness of which was no doubt enhanced by bodily fatigue, and the food and glasses of brandy and water which he had taken. On awaking, he felt a smarting sensation; and he discovered that the fire had drawn a small blister on his knee. With the wish of obtaining immediate ease, he took a lancet from his pocket and punctured the blister, in order "to let out the water." It happened that he had used *the same lancet* to one of his horses supposed to have had the glanders, and had put it up without wiping the point, so that even after he had used it for puncturing the blister on the knee there was some of the inspissated *virus* still adhering to the lancet*. The effects of the poison did not produce any immediate inconvenience, and two days must have elapsed before its absorption into the system produced the horrid consequences I am about to describe, for he went his journey and returned; but alas! it was to take his last and longest one. The description of the symptoms must necessarily be vague, as I received the account of his illness from those who were present; but although they were non-medical persons, the *facts* nevertheless, appear to me worth attending to. Poor

* For what purpose, except bleeding, young Norbrook could have used his lancet on this *glandered horse*, it is not easy to conceive. The *blood* which was carelessly suffered to remain on the point could not have done harm.—EDIT.

Bill Norbrook was seized with a kind of brain fever, *which made him quite mad;* he roared, raved, blustered, and swore, in the most boisterous manner, and all for his horses. It was curious to observe the nature of his delirium; for if incoherent on many things, yet when speaking of horses or coaches, he maintained more connected associations; for example, he would rave in a strain to this effect:—"He would drive himself, by G—d! No man should drive his horses—pretty creatures—they were in good trim, wer'nt they! What ho, my tits; go it, then—go it, my pretty fellows," and much more to the same purpose. This state continued two or three days, with only a few intervals of quiet, and occasionally seasoned with oaths to stable-boys, ostlers, and horse-keepers; and at last the malady became so great, that to keep him from getting up, the attendants put ropes to the bed-posts, and gave them to him as *reins*, and in this manner he continued driving to the last; illustrating, as before remarked, "the ruling passion," until death ended his sufferings. I recollect Norbrook very well, and can say that he was a sober, temperate young man, and enjoyed very good health; hence the suddenness of the attack must be referred to his having used the lancet as before detailed. My informant stated, that he *thinks* Norbrook was locally affected, that is, where the puncture was made. Of this latter fact I can only speak doubtfully, owing to absence of positive evidence.

If this letter should be seen by the medical gentlemen who attended poor Norbrook, it would be a valuable contribution to surgical science to have the particulars detailed with greater accuracy, and the *morbid appearances of the brain*, &c., as in all probability a *post-mortem* examination took place. In conclusion, I may add, that however imperfect this communication is, I hope it may be the means of procuring more correct information on a case of such decided interest.—*(Lancet.)*

THE VETERINARIAN, OCTOBER 1, 1831.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

THE following circular has chanced to fall in our way. We suppress the name of the person from whom it emanated, for it is of the system more than the man that we wish to speak.

"J. N.,

"VETERINARY SURGEON,

"*And Member of the Royal College of Veterinary Surgeons, London,*

"Respectfully informs the Nobility and Inhabitants of E—— and its vicinity, that he has commenced the above profession in all its branches; having had considerable experience at the Veterinary College, London, flatters himself that, with assiduity and strict attention, to be found worthy of the patronage of those gentlemen who shall intrust him with their practice."

The facts of the case are these:—Mr. J. N., formerly a groom, entered at the Veterinary College at the end of January in the present year. He had and could have no previous knowledge of anatomy and physiology. Many of Mr. Coleman's most important lectures on anatomy and physiology had been delivered, and consequently there must have been a great deal in every subsequent lecture difficult to be understood by him, or utterly incomprehensible. He remained at the College a little more than four months; in the beginning of June he took himself off to the place at which he meant to settle, and he issued this elegant circular, and calls himself a "veterinary surgeon, and member of the Royal College of Veterinary Surgeons;" and boasts of his "having had considerable experience at that college."

This is certainly very annoying to the student who, at far greater expense of time and of labour, is striving to do justice to himself and his profession, and it is a most impudent and dishonest thing on the part of the author of the circular; but we know not what is to be done, at present at least. There is no law to prohibit this person from telling lies, or from practising as a veterinary surgeon. One thing, however, is plain enough, that his professional *neighbours*,—we must not offend them by styling them his professional *brethren*,—have not much to fear from him; for this specimen of pure composition, this stream flowing from "the well of English undefiled," will shew sufficiently plainly how far he was qualified to profit by his "considerable experience at the Veterinary College."

It is an interesting question, however, what is to be done to

prevent this poaching upon the property of the qualified practitioner, this disgrace of the veterinary profession, and probable injury of the property of his majesty's subjects?

A few years ago it was the practice of the examining committee to grant diplomas to young men who had not more "considerable experience at the Veterinary College" than Mr. J. N., and who had not even his previous advantages—mercers, tailors, porters, and mutton-pie makers. These men came uninformed, uninstructed: we heard one of them ask which was a horse's knee; but in four months they returned with a diploma, signed, strangely signed, by some very great men, certifying that, by some mysterious process, differing from every acknowledged mode of mental illumination, some unaccountable witchery, equalled only by the delusion which could induce such men to affix their signature to such a paper, these nondescripts had become "qualified to practise the veterinary art."

Common sense, however, and every day's experience affirmed that these men were and must be manifestly incompetent. The profession was degraded by their incompetency, and the low estimation in which it is held is mainly to be attributed to the ignorance and misconduct of these men, far too numerous. This farce of "veterinary surgeon making," as an old contemporary of ours used to call it, was carried to such an extent that it was not only indignantly denounced by the veterinary press, but even the "*pro-collegiates*" could no longer stand it; and at that disgracefully memorable assembly of July 22d, 1829, the very men who declared that the present veterinary examining committee was all that it ought to be, and could not be improved, resolved, with only one *half*-dissentient voice, that "students having occasionally passed their examinations without seeing sufficient of the college practice, the late resolution recommended by the medical committee of examiners, and adopted by the governors, to compel veterinary students to remain at the college twelve months before they be permitted to be examined, will be beneficial to the public, the veterinary profession, and the student; and this meeting begs leave respectively to recommend to the governors, that those pupils who have not been previously educated to the medical profession,

or who shall not have served an apprenticeship to a veterinary surgeon or farrier, *shall regularly attend the college practice at least two years* before they be admitted to an examination before the medical committee."

How far the latter part of this resolution has been adopted we are not prepared to say : we should hope, fully and strictly. The previous recommendation of the examining committee has been adopted, and is, we believe, enforced to the very letter. We trust that it will continue to be so, or rather that both will be guarded from all possible evasion ; and, grateful for this important step in veterinary reform, we will try to subdue and to forget a portion of that indignation with which we have sometimes regarded the original authors of our degradation, and those who would, in other particulars, have continued to degrade us.

The consequence, however, of the by-gone system will for a considerable time remain, to the annoyance and the injury of the qualified practitioner ; but this excellent regulation, undeviatingly enforced, will gradually lessen the annoyance, and, in due time, altogether remove it. The difference in the competency of the one and two years' student, and the ill-instructed four months' man, will be clear to every employer ; and science and skill will ultimately triumph over ignorance and presumption. For a while, possibly, many young men, seeing these incompetent but certificated four months' surgeons around them, will think that they have an equal right to practice, and an equal chance of success, if they start after a similar residence. They would think themselves aggrieved if an expense of time and of money ten times greater than that which was required from others is demanded from them. This, too, will gradually cure itself. When these ephemeral certificated surgeons no longer issue, but the public is rendered aware that the veterinary surgeon must deserve his diploma before he obtains it, and is taught the difference between the new and the old system by the increasing respectability of the man, and the success with which he practices, the chance of the pretender will rapidly diminish, and the honest and sterling practitioner will reap the reward of his sacrifice of time and expense.

Is there nothing to be done in the mean time ? There is no law,

we say, to put down these mushroom men; but there is a power, that of public opinion, which may be called into considerable and powerful exercise. It is now a law of the veterinary college, that a young man must reside there one or two years, according to his previous opportunities for improvement, "before he can be admitted to an examination before the medical committee." There are many young men who can ill afford this; and yet they and their families diminish their little resources, and seriously inconvenience themselves, to obtain the regular and honourable diploma. It is a serious injury to them if an idler and a blockhead can go from the college in four months, and dub himself "a member of the Royal College of Veterinary Surgeons, London," and leave it to the slow, although sure, test of time to detect the imposition; and they have a right to look to the college for protection and redress. He who enforces, and properly enforces, the lengthened residence, is bound in honour to those from whom he exacts it to denounce the men who impudently or fraudulently evade the regulation. The public notification of the plain matter of fact, that such a person had resided but so many months at the college, and therefore was incompetent to practise, should follow his attempt to practise. This should be published in the newspaper which has the greatest circulation in his neighbourhood; or there should be some equally public and effectual announcement of the name of the pretender. This should come from head-quarters. It is an act of imperative justice to those who are honourably striving to qualify themselves for their profession.

When a few of these fraudulent pretenders had been thus shewn up, a young man would pause, and calculate the risk he ran; or, rather, when a few had been rightly exposed, none would afterwards dare to assume a name to which they were not entitled. If the heads of our profession would reflect a little on this matter, we think that they would not fail to see what they might do, and what they ought to do.

Mr. Coleman refuses to give certificates of attendance at the Veterinary College, and has, we think, been somewhat unjustly blamed for so doing. He says that many pupils would place undue value on the certificate, and would use it as a kind of testi-

monial; and that they would occasionally practise on the faith of it, and neglect to prepare for that examination which is the only proper test of their fitness to practise. He is, in a great measure, right; for a certificate of twelve months' attendance would often be exhibited as a proof of qualification, although the holder of that certificate may have been the idlest fellow that ever lived. It should also be recollected, that, in medical schools, the principal or only value of the certificate is, that the examiners will require it as a proof of the candidate's having been in the way of improvement; but no certificate is necessary for the veterinary student; the inspection of the books will always be sufficient to ascertain whether he has resided at the college the prescribed time. He is, therefore, right in withholding that which can be of little actual use, and is subject to very gross abuse. The certificate is worth nothing to the holder of a diploma; but it may be an incentive to, and premium for idleness. When, however, Mr. Coleman very coolly pockets the fee, and gives no ticket of admission, no acknowledgment whatever, he carries the matter a little too far. The ticket is the conventional receipt; it is an acknowledgment of money received, and an obligation to give the money's worth. While Mr. Coleman does right in guarding the profession, he should not deprive the student of all legal claim on him for the performance of his part of the agreement. Mr. Coleman is the only lecturer we know who refuses to give a ticket of admission to his lectures. The reason of that refusal we cannot divine; nor do we think that such refusal can be defended.

But to return: is there nothing more that can be done to prevent this intrusion of half-instructed and incompetent persons? Yes; much *in prospectu*. When the Veterinary College becomes that which its founders intended it should be; when the student receives *within its walls* that instruction which will prepare him for the proper exercise of his profession *in all its branches;* when it may defy inquiry as to the competency of its method and extent of teaching, it may unite with other schools at Edinburgh, or Dublin, or the metropolis itself, and in which there is the same adequacy of instruction, and may ask or demand from government either the establishment of a general board of vete-

rinary examiners, before whom the pupils of all the schools must appear, or a separate incorporation of each school that is honourably and efficiently established, like the medical schools of London, and Edinburgh, and Dublin, and Glasgow, and Aberdeen; and without a diploma from one of which it shall be illegal, after the date of the charter, for any one to *commence* veterinary practice. This is the radical cure; and it is a consummation devoutly to be wished by every honourable practitioner, and by every proprietor of horses and cattle.

Years, however, may pass, and much must be done, ere then. The proof of competency will be exacted from those who would exclude incompetent men. An ordeal must be passed, the test of which our present school will not stand. They must not aim at the reform of the profession who want reform themselves. Much, however, is now doing. This extension of the residence of the student is a most important step. It will bring in its train every other improvement, and particularly in the teacher as well as the pupil. The two years' man will laugh to scorn that which would satisfy the four months' pupil. Let us have patience, and all will be well. No one, four years ago, could have predicted that the profession would have since made greater advances than it had in the preceding thirty; but every one does know, that the march of improvement, once commenced, cannot be arrested; and that we must voluntarily accompany it or be dragged after it. A little patience, and the competent practitioner will be duly estimated; and that barrier will be erected which the false pretender will not overleap or pass.

The meetings of the Veterinary Medical Society will recommence on Wednesday, the 5th of October. We trust that the attendance will be numerous, the discussions animated yet friendly, and the improvement in veterinary science great. This Society will be one of the most powerful agents in effecting the desirable purpose to which our leading article has principal reference.

One of the Editors, Mr. Youatt, may be permitted to state, that, being now permanently engaged in giving instruction on the structure and diseases of all domesticated animals, it will be desirable for him to add to his collection of morbid specimens, and particularly to possess those which town practice will rarely afford. For any of these which would be useless to, or which would not be preserved by any practitioner who reads THE VETERINARIAN, he would be very thankful. He would gladly pay the expense of carriage, or expense in any other way incurred; and the specimens should find a place in his museum, or rather in that of the University of London, with the name of the presenter, and many grateful recollections attached to them. Specimens of the hydatid in the brain of sheep, or larvæ in the frontal sinuses, or worms in the trachea or bronchial passages of cattle, or visceral inversion or strangulation; or, indeed, any thing that illustrates either pathology or physiology, would be acceptable; and a little history of the case would complete the obligation.

Review.

Quid sit pulchrum, quid turpe, quid utile, quid non.—HOR.

Traité Elémentaire de Matière Médicale et Pharmacologie Vétérinaire; par M. Moiroud. Paris, 1831.

[Continued from page 468.]

THIRD CLASS OF GENERAL EXCITANTS;—medicines that increase the contractility of the fibre, and strengthen the tissue of the organs.

Astringents—Styptics.

Astringent medicines have a near relation in their manner of action to those which we have considered, inasmuch as they increase the tone and density of the organic tissues; but their immediate effects, in some sort more material, are distinguished from those of the tonics by a contractility of fibre, and other changes that will be presently mentioned.

The first effect of an astringent is that of a stimulant, but generally local and transient, and which is often followed by a want or cessation of action of variable duration. Astringents, long continued, blunt the sensibility, and that by the contraction of the muscular fibre.

Tonics augment the energy of the vital powers, without producing any appreciable physical change; while astringents, by a kind of chemical action, modify the structure of the tissues, without really augmenting their vital powers.

This mode of action is particularly evident in the vegetable astringents, on account of the tannin and gallic acid which they contain combining with the gelatine that prevails in most of the tissues.

The mineral astringents have a more prompt but less durable action. Their first impression, always more or less painful when applied to a mucous membrane or denuded part, is announced by the contraction of the capillary vessels, and the arrest of the flow of blood, and the discolouration of the tissue; but when the application of the drug has ceased, the vessels regain, by degrees, their natural calibre; they are filled again with blood, and even carry a greater quantity than before.

It follows from this, that the topical means which we employ to diminish the heat of a part, or to arrest the current of any fluid, can only lead to a satisfactory result by being perseveringly administered.

From the power which they are known to have in causing certain fluids that have been effused in the tissues to enter again into the circulation, and also to oppose the inflammation and swelling that external violence is calculated to produce, some of the astringents have been called repercussives or discutients.

Internally administered, they diminish the internal secretions, and render the fæcal discharges of greater consistence, and more rare and coloured. In this relation they have been confounded with tonics; but their action, more circumscribed than that of the tonics, is confined to the digestive apparatus alone, unless they are given in excessive doses, and too long continued, when they may produce considerable derangement.

The pure astringents are much less employed internally than the tonics. They are indicated in chronic diarrhœa, and some passive hæmorrhages; but they would be injurious in all recent inflammations, and in all old ones accompanied by fever, or pain, or material alteration of the tissues.

Some astringents, combined with tonics, acquire an antiseptic property, and are beneficial in gangrenous affections. Cinchona unites in its composition the active principle of the astringent with the bitter one of the tonic. If the pure astringents are not often employed internally, their external application is much greater. They are used under the form of baths, lotions, fomentations, injections, collyria, and sometimes in the state of powder to cleanse unhealthy ulcers; also to suppress chronic discharges

from mucous membranes; to arrest hæmorrhage from the smaller vessels; to prevent inflammatory swellings; to disperse those which already exist, and to hasten the re-absorption of serous fluid thrown out in the cellular tissue.

Astringents are furnished both from the mineral and vegetable kingdoms. Among the former we may reckon cold water, snow, and ice, the greater part of weak acids, and of salts with excess of acid: among the second are the substances which contain tannin and gallic acid, in which two principles the astringent property of vegetables resides. They are also characterised by their peculiar rough taste.

There are a variety of substances which decompose and neutralize the vegetable astringents, and therefore should not be found in the same medicine, as salts of iron, tartar-emetic, corrosive sublimate, and gelatine.

Sulphate of Iron. This is rarely employed internally, except in diseases of horned cattle and sheep, accompanied by debility. It is then administered in powder, made into a ball with honey and some farinaceous substance, or dissolved in some convenient fluid. It is advantageous to associate with it some vegetable stimulant, as gentian, juniper berries, and alder. The dose for large animals varies from two drachms to an ounce, and for smaller animals from a scruple to two drachms.

Externally it is employed in solution, as a bath for tender and foundered feet, and to dry up certain cutaneous discharges. It also enters into the composition of discutient poultices, either for inflammation of the foot, or for swellings caused by the pressure of the harness.

Tartrate of iron and Potash is employed both internally and externally as a tonic and astringent; and for large animals in doses of from two drachms to an ounce.

Sulphate of Alumine and Potash (*Alum*). This is a mineral astringent oftener used than any other in veterinary practice. It is employed internally as a remedy for chronic diarrhœa, and mucous discharges. It is given in solution, and in some vehicle capable of mitigating or assisting its effect, as the disease may require, and in doses from one to six drachms for larger animals.

Employed too long, or in too large doses, it debilitates the canal, diminishes the cutaneous transudation, and thus produces serious mischief. Bourgelat remarked, that horses became consumptive from its injudicious use.

Externally applied, alum arrests capillary hæmorrhage, and subdues chronic discharges from the nose and the heels. It is useful in obstinate canker in the ears of dogs.

Mixed with the white of an egg, it forms a discutient liniment for sprains and saddle-galls. Burnt alum is a slight escharotic, and proper to cleanse sanious ulcers, and to destroy fungous excrescences.

Sulphate of Zinc. This is a powerful styptic, either applied externally, dissolved in water or in some fluid that can increase its effect, in the form of lotion and injection. It is frequently used as a collyrium. Administered internally, it excites vomiting in the carnivora: but it is rarely exhibited for that purpose. In doses of an ounce it acts as a poison, and destroys life. It poisonous action is most evident when introduced under the skin. Two drachms applied to the cellular tissue on the inside of the thigh of the dog, have destroyed the animal in five or six days, and deep ulcerations have been found in the stomach, and principally about the pyloric region.

The oxide of zinc is astringent and desiccative employed externally, and useful in chronic ulceration and obstinate ophthalmia. It has been said to have been used with advantage in epilepsy, and other nervous affections; but its power in these diseases is not generally acknowledged.

The impure oxide, commonly called *tutty*, is employed as an anti-ophthalmic.

Acetate of Lead. This is the astringent most frequently used as an external application by veterinarians. It is a resolvent and desiccative in burns and many other cutaneous inflammations, and in engorgements of the cellular tissue, sprains, contusions, and grease. Injected into the nasal cavities, it arrests chronic discharges, and cleanses glanderous ulcers. It is generally used dissolved in a great quantity of water, but sometimes it has been employed almost undiluted. A little alcohol is often advantageously united to it.

Incorporated with lard and wax, it is the basis of many desiccative ointments.

The *carbonate of lead* is employed for similar purposes.

Except used with considerable discretion, it cannot be employed internally without danger. It acts at the same time on the mucous coat of the intestine and on the nervous system, and produces that species of empoisonment denominated the *lead colic*.

Lime. Quick lime is sometimes employed as a caustic, to repress fungous growths. Lime, however, is chiefly used in combination with water, to cleanse foul ulcers, and dry up chronic discharges. It is injected with advantage into the nasal cavities, in ulceration and chronic gleet of the pituitary membrane. Lime-water has been given with benefit in the hoove of cattle. Some practitioners have thought it useful in glanders and farcy: it

must, however, be given to large animals in doses varying from two to four pounds. Lime-water, mixed with acetate of lead or olive oil, has been advantageously employed as a liniment in burns.

Oak-bark is a very powerful astringent. When employed internally, it is generally associated with some tonics, and is then a good substitute for the Peruvian bark. A mixture of oak-bark, gentian, and chamomile possesses eminent tonic, and astringent, and antiseptic, and even anti-periodical powers, and has received the title of the French cinchona. The dose may be carried to the extent of four ounces, and may be administered in the form of decoction or electuary.

Oak-bark is used externally, in the form of powder or decoction, to cleanse foul ulcers, arrest hæmorrhages, suppress chronic discharges, and disperse œdematous swellings.

Gall-nuts. Their medicinal properties are the same as the oak-bark, but more decisive, and may be administered under the same circumstances, and in the same way.

Bistort is one of the best of our indigenous astringents. The quantity of starch which it contains, advantageously modifies its properties, so as to obtain for it, in the opinion of some, a preference even over the preceding substances for internal uses. It is employed in chronic diarrhœa, and in aqueous alvine discharges. It is generally associated with and assisted by aromatics and bitters. It is administered in the form of powder or decoction in doses from one to two ounces for large animals. As an astringent injection, the decoction of it is highly useful.

Tormentil Root contains the same properties with the bistort, and is often mixed with it.

Pomegranate. The dried flowers contain much astringent matter, and are recommended by some for internal use. The rind of the fruit is a still stronger astringent, and may be employed in cases in which the oak-bark would be indicated. The bark of the root possesses analogous properties, and is particularly used to destroy the tape-worm.

Common Herb-Bennet. The root of this plant is one of the numerous substitutes for Peruvian bark. Although it may not, perhaps, be placed in the same rank with the bark, it offers a very useful resource to the practitioner as an astringent and a tonic. The use of it has been too much neglected in animal medicine.

There are various other astringent substances, but their use is extremely limited in veterinary practice; whether it be from their inferior power, or great price, or the facility with which they may be replaced by substances cheaper and more easily obtained. It

will be sufficient merely to enumerate them:—*Sumach; rose-leaves; the leaves of the shrubby bramble* (rubus fructicosus); *wild tansy; wood strawberry; plantain; common agrimony; squinancy root; madder; mimomosa catechu; gum tragacanth; gum kino, and rhatany root.*

[To be continued.]

Extracts from Journals, Foreign and Domestic.

An Historical and Critical Notice of the principal Works that have been published on Glanders.

Instructions et Observations sur les Maladies des Animaux Domestiques. Vol. II, p. 391.

We shall not stop to report the strange ideas which writers have promulgated respecting this disease before the middle of the 17th century, for we shall find nothing rational or satisfactory. We find only in Garsault's translation of Snape's Anatomy of the Horse some important observations, in which he combats with success the opinions of those who had preceded him, and who had placed the seat of glanders in the brain and the spinal chord.

Lafosse, senior, was the first after this who wrote professedly on glanders. The date of his work is 1749. He says that glanders was unknown among the Greeks and Romans; and he cites Aspyrtus, Cato, Columella, and Virgil, neither of whom makes the slightest mention of it. He adds, that it appeared in Europe about the year 1494, at the siege of Naples; that Parazzez, who was at that siege, is the first who speaks of it; and that the Spanish authors, who called it *muormo*, have given us the earliest authentic description of it.

Lafosse, however, was here in error. The fact was, he had not consulted the Greek authors, but copied the opinion of the writer of "Geohonicorum, sive de re rusticâ." Had he read the Greek writers, as Aspyrtus, Theomnestes, and Hippocrates, he would have seen that they plainly describe the disease. He would have found a notice of it even in Aristotle. Buffon observes of the Greek writers, that they knew very little of any maladies in the ass except glanders.

The *malleus humidus*, *morbus humidus*, and *profluvium atticum* of Vegetius (an author of the existence of whom Lafosse seems to have been ignorant, for he never speaks of him) very much resemble this disease in the description which he gives of it, the treatment which he recommends, and the prognostic which he forms.

Lafosse endeavours to prove that glanders is an inflammatory and local disease, whose sole seat is in the pituitary membrane, and that the most effectual mode of cure is by injection, the frontal sinuses having been pierced with the trephine.

Buffon adopted the opinion of Lafosse, and believed that one of the principal causes was the coldness of the water which the horses drank; their nostrils being so long in contact with very cold water, they were chilled, and a species of catarrh was produced. The most effectual mode of prevention was never to give them cold water, but previously to take off the chill, and to dry their muzzles after they had drunk. This ridiculous error was repeated by Vitet and by Poinsinet de Sivri.

In a second memoir, Lafosse describes seven kinds of discharge from the nostril. He gives the character and the cause of each, and proves that glanders has a peculiarity which distinguishes it from all the rest; and he asserts that he had cured a great many glandered horses by injections and fumigations.

Lafosse, junior, published his treatise on Glanders in 1761. He develops and extends the peculiar notions of his father, and asserts that glanders is a disease purely local, and may be cured by external remedies. To support this hypothesis he affirms that when the viscera of the chest are affected, it is not by the true, but by spurious glanders; and he makes a crowd of divisions and subdivisions, more numerous and more mysterious than those of his father, and which only lead us astray from the true etiology of the disease.

Lafosse, junior, says that glanders is a mucous discharge from the nose, with inflammation or ulceration of the pituitary membrane; that the true glanders has its seat in the pituitary membrane, and that there is no glanders which has not its seat in that membrane; that true glanders alone is infectious, and that all other nasal discharges are free from infection.

In page 57, he has a most singular expression: "Although they who have boasted of curing glanders are either ignorant or dishonest, and generally both; I must except, however, those who practise my mode of treatment."

He likewise strenuously advocated the non-contagiousness of glanders. He says, "true glanders, although the most common of the nasal discharges, and that by which whole regiments are occasionally destroyed, is not contagious." He seems, however, in different parts of his work to be not quite so sure of this, and his language on this point is, in several instances, not a little inconsistent.

M. Dupuis d'Emportes, in his translation of Hall's "Gentleman Cultivator," adopts the opinions of Lafosse, senior, and enters into considerable details respecting the causes of glanders, the

means to prevent it, and the different injections by which it may be cured. They are all detersive or astringent, as lime-water, alum, the different sulphates, alcohol and vinegar. He affirms that horses can generally be cured by these injections in three weeks or a month, but that it is necessary to continue the injections for some time afterwards, and that the horses should be purged during the state of convalescence. He has no doubt of the perfect cure of the animal by means of these injections.

M. Malouin, in **1761**, tried some experiments with black antimony, the herb perriwinkle, and repeated purging, on three horses, one of which he cured after a lapse of six months. He thinks that glanders may be divided into two kinds, the internal, and the external or local.

In **1766** an empirical medicine was much celebrated in Paris under the name of the electuary of Baron de Sind, a colonel of cavalry, and chief equerry to the Elector of Cologne. The Baron himself said of it, "It is the only preservative for horses that are sound, and it will cure all those in whom a cure is possible." The composition of this electuary was not known, and it continued long to be held in high estimation, from the saving clause of the Baron, "that it would cure all in whom a cure was possible."

Bourgelat, in **1767**, recommended lime-water as a cure for glanders. He did not describe it as a specific, but, having been successful himself in the use of it, he wished to encourage the experiments, and to collect the experience of others. Lime-water, however, did not prove to be that valuable medicine which he had imagined, either as a cure or a preventive, and it soon fell into utter disrepute.

Vitet in **1771** published his "Veterinary Medicine." He denied the propriety of the divisions of Lafosse. He considered it to be a simple and contagious disease. He gave some interesting details of it contagiousness, which have not received the attention they merit. He abstained to speak of the causes of glanders, except that he leaned to the opinion of Buffon as to one of the occasional causes; but he boasted of numerous cures, by means of fumigations with orpiment, a mode of treatment which had been recommended for nearly three centuries by the copyists of Laurent Ruse, but a very dangerous method, and which had produced consequences even more to be dreaded than the disease itself. To preserve horses from the infection of glanders, he advised that the external orifice of the nostril should be anointed twice in the day with essential oil of turpentine; and he hinted at a project of which this constituted the most important part, but inefficacious, if, as is now generally allowed, glanders often arises spontaneously.

In **1773** M. Dutz, a veterinary surgeon, in the service of the

United Provinces, published a work in which he considered glanders as a disease of the humours; and compared the chancres of the pituitary membrane with those of the urethra in gonorrhæa, of which the cause was local. As an external treatment, he recommended fumigations and injections. Internally he prescribed sudorifics, mercurial purgatives, and diluents. He considered the contagiousness of the malady problematical. There were numerous examples of security in the most highly infected atmosphere; but these were not to be implicitly confided in.

M. Brugnone, Veterinary Professor at the University of Turin, observed in 1774, that Vegetius had accurately described glanders under the name of *profluvium atticum*, and he compared the chancres of the pituitary membrane with venereal ulcers. He cautioned those who examined the horse not to confound the termination of the lachrymal duct with a glanderous chancre, which was very often done, both at Paris and Turin. He relates as a reason for this caution, that in 1772 there were a great many glandered horses in some of the regiments of cavalry; and that the farriers, who were directed to visit them in order that the sound horses might be separated from the diseased, gave in a most fearful report, for they declared that every horse was glandered, regarding this orifice as a true chancre.

M. Brugnone affirms that there is sometimes, in the interior of the nose, an obstinate fœtid ulcer called ozena, and which may, in process of time, degenerate into glanders; he consequently does not adopt the opinion of Lafosse, who regards ozena as the veritable glanders.

M. Paulet, in 1775, in the second volume of his Researches on Epizootic Maladies, very properly observes, that before undertaking the cure of any glandered horse he should be separated from the sound ones, for there can be no risk in considering all the species of mange as contagious, while there may be very great risk in holding the contrary opinion.

In 1779, M. Chabert published a memoir on glanders. He considered ammonia, diluted with simple water, or orange-flower water, and injected into one of the jugulars, as the most efficacious means that could be adopted, and especially in large fat horses of a lax texture. Domingo Royo had recommended the same mode of treatment in 1734.

About the end of the year 1780, the King of Denmark published an ordinance in which he commanded that his kingdom should be searched, and every glandered horse immediately destroyed, without the slightest compensation being offered to the owner. The carcasses were to be buried in deep trenches, and the ministers of justice were directed to carry the ordinance into execution with the strictest diligence and impartiality.

In 1786, Don Alonso Rus Garcia, of Madrid, compared glanders with the small pox of the human being. Glanders, however, can have no connexion with that eruptive disease, nor will Don Garcia be able to persuade his hearers of the identity between them. He relates, on the faith of two letters written to him by Don Calzûclos, that the treatment which he recommended being pursued, and which contained in it nothing particular, glanders might be easily cured; but he does not offer sufficient proof that the horses that were submitted to this treatment were really glandered. In an appendix, he severely criticises Lafosse as to the seat and treatment of glanders, and says that no horse had been cured in Spain by the operation of the trephine, although it had been practised by the most skilful veterinarians.

Among the boasted remedies for glanders published from time to time, those that were most extensively tried, and longest maintained their repute, were the *antimonial preparations* of Jacquet; the *ash-wood* quenched in ale, the mixture injected into the nostrils, recommended by one of the Dukes of Norfolk, and the compound of which *savine* is the base, discovered by Chevenet, and which cost government an immense sum without producing any useful result.

Government, in 1784, considering that glanders was a disease for which no remedy had been discovered, and that it propagated and perpetuated itself in all manner of ways, wished to put agriculturists and farriers in possession of the means by which they might at all times distinguish it, and they charged M. Chabert to draw up an account of its prevailing and characteristic symptoms. This was published in the following year. It was divided into twelve sections.

I. *The Symptoms by which the existence of Glanders may be recognised.*—These vary in different individuals, and in the three stages of the disease. Many of them are common to strangles, pneumonia, pleurisy, and nasal gleet, and with which it is dangerous to confound them; but discharge from the nose of a fluid more or less thick, enlargement of the submaxillary glands, and chancres on the membrane of the nose, are the most usual symptoms, and often exist at the same time, which is not the case with the other maladies for which glanders may be mistaken. In addition to this, the diseases abovementioned, always acute or inflammatory, run their course in a short period, whereas the progress of glanders is generally exceedingly slow.

II. *Post-mortem appearances.*—No viscus will usually offer decisive traces of this cruel malady, but the head and the chest exhibit the principa lesions.

III. *Causes of Glanders.*—These are either evident or conjectural. Among the former is the communication of sound horses

with those that are glandered; and among the latter are unwholesome food, suppression of perspiration, and other maladies neglected, badly treated, or repeated. Glanders following farcy is always incurable, but glanders degenerating into farcy often admits of cure. Hippocrates states the same opinion, and asserts that, when a horse has been farcied, he is subject to become glandered.

IV. *Reflections on the curability of Glanders.*—It is not incurable, but its treatment has hitherto been long, and consequently expensive, and very uncertain in its result. The cure should only be undertaken when the horse is in good condition, of a sound constitution, free from other diseases, and when the probable causes of the malady may be removed.

V. *The examination and separation of diseased or suspected horses.*—This article is filled with most useful details. It is a perfect description of the only scientific and safe method of proceeding in the examination of a stable, a farm, a post-house, or regiment, in which glanders has appeared.

VI. *The manner of classing the diseased or suspected horses.*—They should be divided into three classes, the first composed of those who are undeniably and confirmedly glandered, and who should be at once destroyed; the second including those in which there are symptoms of incipient disease; and the third, those who have been in communication with glandered horses, and therefore may be considered as suspected.

VII. *The first class.*—M. Chabert recommends that the carotids should be opened, or air blown into the jugulars, neither of which will produce any change in the appearance of the viscera; he then gives at considerable length directions for conducting the post-mortem examination, and orders that the skin should be always buried with the animal. He particularly insists on this in large towns, which may be considered as the focus of the disease, and in which it is always breaking out; and he refers to the careless transport of the skins, the different hands through which they pass, and the exhalations which proceed from them, and which he considers as a principal source of the contagion. We think, however, that too much stress is laid on this; for if the skin is once exposed to the action of lime, or even sprinkled with chloride of lime, all danger will cease.

VIII. *The second class. The treatment of glandered horses.*—The first and most important thing is to attempt to discover the cause of the malady, and then most scrupulously to remove it. Without this indispensable preliminary, the greatest sacrifices, and the minutest precautions, and the most methodical treatment, will often fail. The plan recommended by M. Chabert will not be applicable to all cases, but the grand principles which he states will guide the veterinarian through every difficulty.

IX. *Care and regimen.*—These are of more importance than is

generally imagined. The horse should be moderately but not grossly fed. It is as essential not to furnish nature with a superabundance of nutriment, as not to deprive her of that which may be necessary to support the constitution against the ravages of the disease. Good and effectual grooming is of more consequence than many suppose, to keep up the insensible perspiration, and to restore the healthy circulation through the vessels of the skin.

X. *Preservative treatment.*—This is detailed at considerable length, because it includes horses of the third class as well as the second. The second having only some of the symptoms of the malady, afford hope of cure; and the third may perhaps be preserved untainted, or the symptoms may be readily met at their first appearance. M. Chabert principally advises the application of the cautery over the frontal sinuses, and to the glands beneath the jaw. This had been recommended by Hippocrates.

XI. *Horses that have communicated with those that are glandered.*—The treatment consists in carefully watching them, and in increasing, as much as can safely be done, the various secretions and excretions.

XII. *Purification of the stables and the equipage.*—Some have considered that the details contained in this article are too minute, and the proceedings recommended too expensive; but they had not possessed the extensive experience of M. Chabert respecting the fatal effects of the contagion of glanders.

M. Gilbert, in 1791, endeavoured to prove that the true and bastard strangles and glanders possess very nearly the same character. He is inclined to consider glanders as a consequence or degeneration of strangles, or a kind of imperfect strangles; and he founds his opinion on the identity which seems to exist between these diseases. He says, that horses with strangles will give glanders to old horses, and that old horses with glanders will give strangles to young ones. In the pursuit of his inquiries, he considers the nature and affection of some cutaneous and mange-like affections. He does not consider that the sudden revulsion of them may produce glanders, but he traces them to the presence of the leaven of strangles, which had not been sufficiently evacuated in the insufficient treatment of that disease, and particularly he traces it to the abuse of bleeding in strangles, by which the perfect suppuration of the tumour has been prevented. It follows, from the opinion of Gilbert, that one of the means to cure glanders, or at least to prevent it, is to permit strangles to run its full course in the young horse.

He attempts to prove that farcy, to which the French farriers have given the burlesque name of cousin-german to glanders, is nothing but a symptom of that disease; and that it was first regarded as a distinct disease in consequence of the ignorance of farriers, who consider every symptom a new malady.

THE

VETERINARIAN.

VOL. IV. NOVEMBER, 1831. No. 47.

Communications and Cases.

Ars veterinaria post medicinam secunda est.—VEGETIUS.

MR. YOUATT'S VETERINARY LECTURES,

DELIVERED AT THE UNIVERSITY OF LONDON*.

Respiration.

Gentlemen,

IN the partial course of lectures which I had the honour to deliver in this University early in the present year, two of the *systems* into which it appeared that our subject might be conveniently divided were considered—the *sensorial* and the *circulatory*.

The SENSORIAL, the *primum mobile* of the machine.—I spoke of the *brain*—that organ to which all sensation is referred, and from which, or from its prolongation in the spinal canal, the power of voluntary motion is derived—the fountain of *animal* life,—the medium by which we are rendered conscious of surrounding objects,—susceptible of pleasure and of pain,—and on which, through every gradation of being, and those more numerous and extending far lower than many are willing to allow, depend intellectual power and moral feeling.

I considered that important nerve, the *sympathetic* or *ganglionic*, whether first brought into view at the base of the atlas, or contemplated in those innumerable radiations of nervous influence concealed in the abdominal cavity, and denominated the semilunar ganglion; one of the fountains of *organic* life,—ramifying over every viscus, surrounding every vessel, and by the influence of which the heart beats, and the lungs heave, and the stomach digests:—unconnected with sensation but by anastamosis with the cerebral nerves, and totally independent of the will.

* While there was any doubt concerning the continued delivery of these lectures at the University, the publication of them in this periodical was suspended; but a permanent appointment having taken place, there will no longer be any interruption in the series.

I then proceeded to that kindred and newly-discovered power, newly discovered, at least, with regard to its function, and the discovery of which will immortalize the name of Bell—(on no scientific man was ever an honorary distinction more worthily conferred by his sovereign)—the *respiratory* nerves; derived from the lateral column of the medulla oblongata and the spinal chord; immediately on their escape from the skull, closely connected with the ganglionic, anastamosing freely with them, associated with them in function, and, at length, perfectly mingling and identified with them.

These constitute another fountain of *organic* life, prior, however, to their perfect amalgamation with the ganglionic, somewhat differing in function,—acting when the animal is unconscious of the action, and in despite of the will, yet, to a certain degree, under its influence and control, and sensitive only as connected with the ramifications of the sensitive nerves of the spinal column:—interposed between the nerves of voluntary motion and sensation—a kind of neutral ground between them—deriving assistance from or leading it to the cerebral nerves—proceeding first, as their names imply, to the respiratory organs, but not terminating there—either directly or indirectly conveyed to, and influencing every viscus of organic life.

Having considered the functions of the nerves, I entered on the consideration of their diseases, whether referrible to excessive, or diminished, or irregular, or suspended influence, including tetanus, rabies, epilepsy, palsy, chorea, and various other affections.

Then, as the stimulus presupposed a tissue to be acted upon, and in that tissue a power of responding to the action of the stimulus, a principle of contractility; and as that which was first of all, or exclusively necessary to the existence or continuance of this contractility was a constant and due supply of arterial blood, I was led to the CIRCULATORY system,—the mechanism of the circulation,—the power by which the blood was propelled, and the vessels through which it flowed.

I considered the construction of the central machine,—its percussive action,—that by which, in some of the grander as well as simpler operations of nature and of art, power is so astonishingly multiplied. I followed the blood through the arterial system:—these vessels, in the natural and healthy state of the circulation, seemed to be mere mechanical tubes, yet, under disease or derangement they were capable of exerting a controlling influence, and could supply a defect of power in the central machine, or neutralize its too energetic action. Ramifying from

every portion of the arteries, or the arteries terminating in them, are the capillary vessels: so minute that there can be in them no *vis a tergo*, for the attraction which the parietes of these tubes, so nearly in contact, exert on the fluid passing through them, is fully sufficient to neutralize any force impressed from behind. Then, that coat, little developed and powerless in the larger vessels, but comparatively increasing in bulk and in power as the vessel diminishes in calibre—the muscular coat—takes up the action, and, supplied with energy from the ganglionic system of nerves, contracts upon the contents of the capillaries, and continues to propel the blood in its course.

The capillary vessels having traversed every portion of the frame, every secretion having been duly performed, each tissue plied with the power of contractility, and each worn out part built up, the blood begins again to be collected in other vessels of a different construction; exerting little or no power on the fluid which traverses them, and unaided by any propulsive power from the heart; yet the blood once more pursuing its course through the agency of that important machine, the principle of derivation now supplying that of percussion.

When the piston is raised in the barrel of the pump, the water flows in to prevent the formation of a vacuum, and to restore the equilibrium of atmospheric pressure; so when the heart, having contracted on its contents, resumes, by an inherent principle of elasticity, its natural form and state, that of dilation, the blood flows in from the cavas in the same way, and influenced by the same principle. As in the artificial pump the fluid would rush through the pipe, although it were a hundred yards in length, when the piston is raised, so, when the ventricle is suddenly dilated, the blood flows on from the remotest portion of the venous canal.

The motion of the blood is much assisted in the extremities by the action of the muscles—exercise is the readiest way of quickening the circulation; and the assistance rendered by the muscles, when they compress the veins, is regulated by the valves, which will permit the blood to flow on, but not to take a retrograde course.

Having thus considered the mechanism by which the circulation of the blood is effected, I should naturally proceed to the changes which take place in the blood during its circulation; and as the majority of my little class is composed of those whom I had before the pleasure to see around me, and as the systems into which our subject has been thrown are distinct from each other, and each can be satisfactorily considered without any great re-

ference to others, I shall thus proceed, and shall reserve the subjects of our last course for the conclusion of the present one.

I will commence, then, by inquiring into the change which takes place in the blood during the shorter or pulmonary circulation; or, in other words, the RESPIRATORY system will first occupy our attention during the present course.

Respiration is the act of breathing—the alternate reception and expulsion of air into and from the chest. Our subject, then, admits of two natural divisions—the mechanism by which the air is inhaled and forced out, and the effect produced during its continuance in the chest.

The thorax or chest contains, beside the heart and thymus gland, two large spongy bodies, and by these substances it is completely filled. When we trace the minute structure of these spongy bodies, the lungs, we find that they consist of numerous bloodvessels designed to convey nourishment to them, and of a far greater number of others bringing blood from the heart, and returning it to that organ; and also thousands of other little tubes, carrying no blood, but only air—traced in one direction to blind pouches or bags, and in the other, through the trachea, and pharynx, and mouth or nose, to communication with the atmospheric air; and all surrounded by and embedded in a great quantity of elastic cellular substance called the parenchyma, capable of expansion or compression, and yielding to the slightest impulse or power.

The thorax is bounded anteriorly by the vessels which enter it or proceed from it, and the cellular substance by which they are surrounded; posteriorly, by the diaphragm; laterally, by the ribs; superiorly, by the spine; and inferiorly, by the sternum: by means of certain muscles and cartilages it is capable of enlarging or contracting its dimensions to a very considerable degree.

The diaphragm is a strong muscular curtain, partly fleshy and partly tendinous, stretched in a slanting direction from the spine to the sternum, and dividing the chest from the abdomen. In its natural state, it projects into the chest. It is convex towards the chest, and concave towards the abdomen; and it is supplied with nerves from the lateral or respiratory column.

Stimulated by the phrenic nerve, it contracts. The action of every muscle is that of contraction. As it contracts it must become straighter; and its bellying or convexity towards the chest must be lessened in proportion to the power applied to it. And what is the consequence of this contraction? That the cavity of the chest will be in the same proportion enlarged. Then, as in the

raising of the piston in the barrel of the pump, or the elastic dilation of the heart, a vacuum will be formed, or there will be an irregularity of atmospheric pressure; there will be diminished resistance to the enormous pressure of the air; and the air will rush down the windpipe, and fill the cells, and expand the lungs, until they once more completely fill the chest, and the equilibrium of pressure is restored.

The intercostals act in an indirect manner, very little assisting in respiration in natural breathing, but preserving the ribs from closing by the action of the diaphragm. They are antagonists to the diaphragm, and, all together, are stronger than the diaphragm. The first rib is the fixed point; the intercostal between it and the second contracting brings it nearer to the first, and the third follows the second, and they are brought somewhat forward; and, in being brought forward, they are necessarily thrown outward, and the cavity of the thorax is increased. Thus, while acting as antagonists to the diaphragm, the intercostals curiously assist in producing the expansion of the chest.

The air-cells being thus filled, the phrenic nerve ceases to bestow its influence; and the diaphragm, by the inherent elasticity of its fibre, resumes its former shape, and protrudes again towards the chest, and the intercostals cease to act, and, by the elasticity of the cartilages, the ribs fall, and the cavity of the chest is diminished, and the lungs are pressed on every side, and a portion of the air is forced out. The abdominal muscles occasionally assist powerfully in this, and always to some degree; but in the usual healthy breathing their aid is not required or lent to any considerable extent. Presently, but from what cause we know not, the influence of the phrenic nerve is felt again, and the diaphragm once more contracts, and the ribs are thrown outward, and the cavity of the chest is enlarged, and a vacuum would be formed, and the external air rushes in to restore the equilibrium of pressure; and during life the chest continues to expand and to contract, and the atmospheric air to rush in and to be expelled.

It is judiciously remarked by Dr. Bostock, that inspiration is the vital act, and that expiration is the mechanical return to quietude by the elasticity of the parts displaced, whether we consider the cartilages, the diaphragm, or the lungs themselves.

The act of respiration is effected by nerves that, although not of cerebral origin, are partly under the control of the will. The inspiration may be deepened or quickened at pleasure; and in hurried, or laborious, or diseased respiration, we are enabled to avail ourselves of the aid of the pectorales, and the serrati, and the levatores, and the transversales costarum, and many other muscles in inspiration; and more forcibly to employ the abdominals in expi-

ration. In cases of urgent necessity we can press into the service every muscle of the chest and of the loins.

What is effected by the rising and falling of these living bellows? I will not detain you by enlarging on any of the secondary effects of respiration; as the dependence of the voice on the passage of air over or through the vocal organs; the occasional pressure on the thoracic and abdominal viscera accelerating or retarding the circulation, influencing digestion, and hastening the expulsion of the fæces; the maintenance of the proper degree of temperature in the frame; the sense of smell, for odoriferous particles from surrounding objects can be received into the nostril only during the inhalation of air: but there is one fact,—the blood that flows from the left ventricle of the heart through the aorta is red, vital, able to support the secretions, and to nourish and build up the frame; but having thus parted with some of its substance and properties, or by the absorbing power of the vessels, or the direct influx of fluid through the absorbent, being mixed with other ingredients, and having acquired a different character, it becomes black, and, if not poisonous, yet inefficient; and no longer able to bestow on the tissues the power of contractility. Supplied with venous blood alone, every muscle of organic and of animal life would cease to act; and that muscle, the heart, the very source of circulation, would first stop, and the animal would immediately die. This, then, is the grand effect produced by respiration, to change the venous blood to arterial—the inefficient to efficient—to supply that without which no tissue will respond to the stimulus of the nerves either of animal or organic life, and without which no creature could live for an instant.

How is all this effected? What mysterious change is it that takes place in the circulatory fluid? The venous blood is sent from the right ventricle of the heart to the lungs, and the pulmonary artery branches into divisions more and more minute, until they are many times less than a hair: and these minute vessels ramify over the cells in which the air-passages terminate. When these cells are distended with air, the air and the blood are separated from each other only by the thin parietes of the vessel, and the thinner membrane of the cell, and these delicate gossamer membranes are pervious to the air and to those component parts of the blood which are capable of assuming a gaseous form.

It will be my pleasing task, in other lectures, to describe at length, and to illustrate by experiment, the chemical effect which now takes place. The blood has received, through the means of the various absorbents, or the chyle conveyed to it by the thoracic duct, a quantity of carbon, and it has other matters which require

to be modified and changed. One of the ingredients in atmospheric air is oxygen, which has a strong affinity for the carbon, and also for these other matters, and a double decomposition or change of principles takes place in these little cells in which the blood and the air has been brought into contact.

The carbon quits the blood and combines with some of the oxygen of the air, and forms carbonic acid; and more of the oxygen quits the air and unites with these unknown substances in the blood for which it has affinity, and by this loss of carbon and gain of oxygen the blood is changed from venous to arterial—from inefficient to efficient—the contractility of the tissues to which it is sent is preserved, and all the functions of life are discharged.

You see, then, with what important physiological matter this respiratory system is full; and that, with reference to pathology, it contains next to, or more than the foot, that which interests us in pathology. Nasal gleet, glanders, roaring, bronchitis, catarrhal fever, pneumonia, pleurisy, broken wind, thick wind, and various other chest affections, will pass in review before us; and, indirectly, many a subject will be involved most intimately connected with the health and usefulness of all domesticated animals.

The respiratory passages open on the external air at the nostrils of the horse, and at the mouth and nostrils of our other patients. The mechanism of the velum palati, or soft palate, prevents the horse from breathing through his mouth. The nasal cavity will therefore first come under consideration.

Its bony structure is thus composed:—Superiorly and laterally we observe the nasal bones;—laterally and more inferiorly, the nasal surface of the superior maxillary bones,—and also laterally, but more anteriorly, the anterior maxillaries;—closing it posteriorly, the æthmoid bones;—inferiorly, and constituting the floor, the palatine processes of the anterior maxillary, anteriorly; the palatine processes of the superior maxillary, centrally; and the crescentic border of the palatine bones, posteriorly: and lying along the middle of the floor, and supporting in its groove the cartilaginous septum, is the vomer. The contents of the cavity on either side are, the convoluted portion of the æthmoid bones; the posterior and anterior turbinated bones; the lachrymal duct; and the bony canal, the canalis infra orbitarius, conducting the facial portion of the anterior maxillary nerve, to be distributed over the lips and lower part of the face.

I will endeavour to give a brief description of each. First, observe the NASAL BONES in the horse, occupying the greater part of the face. We find them connected, externally, with the

frontals, posteriorly; the lachrymals, laterally and posteriorly; the superior maxillaries, laterally and along the middle part of the face; and laterally and anteriorly with the termination of the process of the anterior maxillary, received between them and the superior maxillary. Along the median line of the face is the nasal suture which unites them to each other.

Within, they are connected with the cartilaginous septum and the posterior turbinated bone.

Observe the form of the nasals—broad, and rounded above, tapering to a point below; the curve being on the outer and lower edge, and the edges by which they are united together constituting a straight line from the frontals to the nose. Together they have been said to bear no slight resemblance to the heart painted on a pack of cards.

They are vaulted—convex without and concave within—forming the crown of an arch. In some heads [several were here produced] the nasals so unite as to constitute one tolerably regular and perfect arch—in other heads the curve of each nasal is narrower, and when they are placed in apposition they form two little arches with a depression between them along the suture. This is often found in the blood-horse, with his comparative broad head and face; the single elevated arch belongs to the long and narrow face of the draught-horse. In either case, two objects are effected, strength and lightness—the arched roof gives strength to a part exposed to injury from accident or brutality, and that with as little weight as possible, for the head being appended from the long lever of the neck, a very small addition of weight would act with great mechanical disadvantage.

The nasal bones pursue their course down the face, in some horses, in a straight line; in others, there is a slight prominence towards the upper part; while in a considerable number a depression is observed a little lower down. Some equine physiognomists have imagined that this deviation in the line of the face affords some indication of the temper of the animal; and I believe there is a little truth in this.

Of the horse with straight profile much cannot be predicated: he may be good or bad tempered, but not often either to any excess. The one with a prominent Roman nose will not possess his comparative share of either the intelligence or the courage of the ancient illustrious proprietors of this projecting organ; but an easy, good-tempered kind of beast, hardy, ready enough to eat, not quite so ready perhaps to work, yet that may be made to do his duty without any cruel urging; and with little pretension to speed or to blood. On the other hand, a depression across the

centre of the nose, indicates generally some breeding, especially if the head is small, but occasionally accompanied by a vicious uncontrollable disposition.

There is another way, however, in which the nasal bones do more certainly indicate the breed, viz., by their comparative length or shortness. There is no surer criterion of a well-bred horse than a broad angular forehead, prominent features, and a short face; nor of a horse of little breeding than a narrow forehead, small features, and lengthened nose. The comparative development of the head and the face indicate, with little error, the comparative preponderance of the animal or intellectual principle.

Observe the manner in which the nasal bones are connected with the neighbouring ones; see the strangely intricate mortised connexion with the frontal bones above. It gives a firmness of attachment between these bones, which no human ingenuity could have better contrived. A separation of one from the other is almost impossible. Here the strength is principally wanted. The parts most concerned with the sense of smell lie underneath. There the blow of brutal violence will oftenest fall; or should it fall lower, and the bone should yield, it would act with the increased power of a lever in separating the frontals from the bones above. Trace the connexion with the superior maxillary bones below. It is necessary that the base of the arch should be firm, or it will support little weight, and resist little force. The buttress here is singularly and admirably contrived. It is not merely the overlapping or squamous suture of the temporal bone, but the superior maxillary is split into two laminæ, and the nasal bones are received deeply between them, so that, whatever may be the force impressed on its crown, it is almost impossible that the arch of the nasal bones should give way at its base. Still lower down, where the process of the anterior succeeds to the superior maxillary, and the apices of the nasals are continued unsupported for two or three inches, and the attachment of these bones to those below ceases, the suture terminates by an increase of strength that almost defies injury, for the nasals are received equally deep between the plates of bone, and these bones are many times thicker than the superior maxillaries. The nasals are attached to each other by a denticulated suture as far as the æthmoid bone extends: when the cavity becomes a mere air passage, they are less firmly united, and towards the apices have little more than a cartilaginous attachment. Even in the disposition of the bones of the nose there are evident proofs of admirable contrivance.

FOUR CASES OF BRONCHOTOMY.

By Mr. Joseph Toombs, V.S., *Great Barrington.*

On the 28th of September, 1829, I was called in to attend a cart-colt, rising three years old, the property of a neighbouring farmer. I found the animal with an enlargement of the thyroid gland on the near side, and slightly laborious breathing; the pulse accelerated, and a difficulty of swallowing. I blistered the gland, ordered green food, and gruel instead of water, and nitre in the form of a linctus.

29*th.*—Pulse 50. Great difficulty of breathing, which became tranquil after the abstraction of four quarts of blood. Gland on the opposite side enlarged, which was also blistered. The linctus continued.

30*th.*—The animal labouring under excessive difficulty of breathing, with a tremendous roaring noise, and considerable enlargement of the larynx. Seeing that there was no chance of saving the horse from suffocation for another hour, except by an operation, I performed it in the following manner:—An incision was made about four inches in length, through the integument, and sterno-thyroideus muscle: a portion of one of the rings of the trachea was excised large enough to admit one's finger: a thread was passed through the muscle and integument on each side, and fastened to the mane, to prevent the aperture from closing. The larynx was extensively blistered, and fomentations were applied. The colt feeds a little.

Oct. 1*st*, 2*d*, *and* 3*d.*—Colt lively; feeds better; linctus and fomentations continued: wound kept clean by means of a sponge.

4*th.*—This morning three or four pints of thick matter have been discharged from the nostrils. Larynx subsiding; treatment as before.

5*th.*—From this time until the 15th, the animal kept gradually mending, when it was ascertained, by pressing the lips of the wound together (which was had recourse to daily), that he could breathe freely through the natural passage. The wound was cleansed, and the skin brought into apposition by means of sutures; the wound readily healed, and the animal soon regained his wonted vigour, and has done well ever since.

CASE II.

On the 13th December, 1829, an entire cart-colt, rising three years old, was observed, when taken from work, to be very dull, and when offered food, it could not swallow; a quart of ale was

administered by the carter by way of cleaning his throat, as he observed.

16*th*.—Found the animal heaving violently at the flanks; great difficulty of breathing; quick pulse; depression of spirits; great perspiration; has not taken any food since yesterday morning: considerable tumefaction of the larynx. Seeing that the animal could not otherwise survive, the trachea was opened in a similar manner to the foregoing case, which had the effect of giving him instant relief.

Treatment.—In the evening two quarts of blood were abstracted, which produced syncope; the larynx was blistered; and nitre administered in the form of a linctus. He has taken two quarts of gruel, being the first nourishment since his attack.

17*th*.—Feeds a little; the blister not having the desired effect, it was repeated; fomentations were applied frequently; gruel, instead of water, to drink.

18*th*.—Feeds much better; fomentations and linctus continued.

19*th* to 26*th*.—Gradually mending; he was supplied with scalded oats and bran sparingly; and nitre given occasionally in his food.

29*th*.—Animal frequently coughs; larynx subsiding; one drachm of powdered stramonium and half an ounce of nitre to be given daily in his food.

31*st*.—The colt breathes freely through his nose; the artificial aperture was closed, and soon healed; considerable cough, however, remained, and the medicine was continued as before.

5*th January*, 1831.—Animal perfectly recovered, and was sold in about three months for 100 guineas.

CASE III.

26*th January*, 1831.—A cart horse, seven years old, which had recently recovered from an attack of influenza, was seized with considerable swelling of both hind legs; great heat and tenderness on pressure; quick pulse; breathing accelerated: two gallons of blood were taken away in the course of the day, and a diuretic ball administered; fomentations applied to the legs; walking exercise ordered. Appetite good.

27*th*.—The horse much better; swelling of the legs diminishing; fomentations and exercise continued; ball repeated: feeds well.

28*th*, at 8 A.M.—Swelling of the legs more diminished; ball repeated; slight swelling of the nose, which gradually extended over the face and head, and in three hours the horse was totally

blind; the breathing accelerated, which became very distressing towards evening: considerable perspiration. The symptoms were not mitigated by two copious bleedings, and, becoming alarming, the trachea was opened: he experienced great relief from the operation; feeds tolerably well.

29*th*.—Swelling of the head a little subsided; feeds better; fomentations continued; a ball was administered and continued daily, composed of turpentine ʒj, and sulphate of copper ʒij. A rowel was inserted betwixt the jaws, one in the breast and one in each thigh.

30*th*, 31*st*.—Swelling of the head gradually subsiding, eyelids opened; effusion of lymph over the transparent cornea of both eyes: rowels discharge well; appetite good.

1*st* to 15*th February*.—Swelling of the head and face diminished; breathes freely through his nose; aperture closed: rowels removed; fast recovering, but is quite blind, and has continued so ever since.

CASE IV.

14*th June*, 1831.—A grey pony was attacked with strangles, and the tumefied glands were blistered.

16*th*.—Matter was found to fluctuate under the skin; the abscesses were opened with a lancet, and a considerable quantity of pus evacuated.

19*th*.—A high degree of inflammation attacked the larynx and root of the tongue; breathing suddenly became excessively laborious, with a roaring noise, and heaving at the flanks. The animal getting much worse, and it being evident the disease would otherwise soon put a period to his existence, the trachea was opened, and a portion of one of the rings excised, as in the foregoing cases; the larynx was extensively and severely blistered. The pony eats very little, and labours under great debility: was not bled.

20*th*.—Swallows with difficulty; abscess forming at the root of the tongue.

21*st*.—Feeds better; less difficulty of swallowing; matter evacuated.

23*d*.—Two other abscesses making their appearance, the part was constantly fomented; feeds well.

27*th*.—Matter fluctuating under the skin; the abscesses were opened, when matter of a mixed character was evacuated.

1*st July*.—Animal breathes freely through his nose; the aperture is closed, and the pony fast recovering his lost flesh.

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OBSERVATIONS ON THE

APPLICATION OF CHEMISTRY TO PHYSIOLOGY, PATHOLOGY, AND PRACTICE.

By Wm. Prout, M.D., F.R.S.

[Continued from page 580.]

LECTURE III.

Chemical Properties of some of the more important Principles of the Urine—Of Chylous Urine—Urea—Cystic Oxide—Lithic Acid—Purpuric Acid, &c.

In the present lecture it is my intention to exhibit to you a few of the leading chemical properties of some of the more important principles occurring in the urine, and at the same time to take a concise view of an interesting and very rare form of disease connected with

Albuminous Urine; or rather that variety termed *chylous* urine, and which, I believe, was first distinctly described by myself in my little work on urinary diseases. Since that time, principally by the favour of different friends, I have seen more or less of eight other cases of the same affection.

The properties of the urine in this disease (of which I here exhibit a specimen) have been so minutely described in the work above alluded to, that I do not think it necessary to enter very minutely into the subject at present, particularly as many of the phenomena require close attention, and can scarcely be exhibited in a public lecture. The leading circumstances are, that in general this urine so nearly resembles chyle in all respects, as to be scarcely distinguishable from it: that it occasionally passes on the one hand into blood, and on the other into lithate of ammonia; that the chylous state is generally found to be more marked two or three hours after eating, while in the morning it is sometimes nearly absent; lastly, that its specific gravity little exceeds, and sometimes does not equal, that of healthy urine: so that unless the quantity of urine be inordinate, which is sometimes the case, the drainage from the system does not much exceed that of health—a circumstance accounting in some degree for the little constitutional disturbance generally produced by this affection.

The following conclusions may be drawn from the cases which have occurred to me:—

First.—This disease occurs in both sexes before and after puberty. Of the nine cases, four were males and five females; and two cases occurred before puberty, one, namely, in each sex.

Secondly.—The majority of the cases, five out of nine, occurred either in natives of hot climates, or in individuals who had been resident for many years in such climates.

Thirdly.—The general health suffers much less from the affection than might be expected. There is commonly more or less of emaciation, accompanied by uneasiness, usually described as a sense of heat, or pain in the region of the kidneys, but sometimes these are entirely absent. The disease does not interfere with the pregnant state, nor with the secretion nor qualities of the milk, and may continue more or less, for a great number of years, without apparently much affecting the constitution. The appetite is generally good, and sometimes inordinate.

Fourthly.—There is evidently an inflammatory tendency in the system during the continuance of the disease, or at least such a tendency frequently arises during its progress, and requires, and is benefitted by, bloodletting. Two of the individuals died of inflammatory attacks of the abdominal viscera—one during the disease, and the other some time after it had subsided; and it is remarkable, that in the latter case the kidney (which, by the favour of Dr. Roe, I here exhibit to you) does not present any marks of organic lesion. It is a singular circumstance, however, that during *acute* inflammation and fever, and also during the presence of ptyalism from mercury, the chylous characters of the urine usually disappear, but return again, sometimes in an aggravated form, as soon as these have subsided. In the chronic state of the affection, the complaint has yielded completely for a time to the use of opium, astringents, and the mineral acids, but in other instances these and every other remedy tried have failed. Sometimes the complaint ceases spontaneously, and occurs again after a long interval, and when it has once occurred it appears to be very liable to return, particularly after exposure to cold, or any cause producing fever. In general I have observed that all stimulating remedies and powerful diuretics do harm: the same may be observed in general also of tonics, which, from the inflammatory character of the affection, do not in general agree well, and, indeed, I have seen the affection much aggravated by their use.

Lastly, what is the intimate nature of the disease? The intimate nature of this affection, like that of all others, is obscure; but the principles developed in our former lecture seem to throw light on its general nature, and, by directing our attention to the right road, may at some future time enable us to follow out its nature in detail. That both the assimilating organs and the kidneys are involved in the affection, cannot, I think, be doubted. The chyle, from some derangement in the processes of assimila-

tion, is not raised to the blood standard, and consequently, being unfit for the future purposes of the economy, is, agreeably to a law of the economy, ejected through the kidneys; but these organs, instead of dismerorganizing it as usual—that is to say, instead of converting it into the lithate of ammonia—permit it to pass unchanged. That this is a just view of the matter, cannot, I think, be doubted; for if the chyle was properly converted into blood, this fluid, and not chyle, ought to be thrown off by the kidneys. On the other hand, it may be stated as an argument in favour of the notion that the kidneys are affected, that I have often found chyle in the blood when the urine was entirely free from albuminous matters; shewing that, in the healthy state of those organs, even though chyle does get into the sanguiferous system, it is not necessarily ejected, or, if it is, that it undergoes the usual changes in passing through the kidneys. This affection of the kidneys, however, like that in diabetes, does not seem to amount to organic disease, at least such as is cognizable by the senses.

The next principle occurring in the urine, on the properties of which I shall make a few remarks, is *urea*. This principle, of which I here exhibit a specimen, has been lately found in the blood. Indeed I detected it, or something very similar, in the blood myself, fourteen or fifteen years ago, but could not at that time believe the evidence of my senses. It has been lately said to have been formed artificially, but I have some doubts on this point, at least as to the manner stated.

Urea I consider as an albuminous product, and one of two principles into which that substance is capable of being decomposed, as I hope at some future time to be able to demonstrate. It plays a very important part in the urine, chiefly of a secondary nature, and which admits of a complete and satisfactory explanation, founded on its composition. I ascertained, many years ago, that it is composed of the elements of carbonate of ammonia and water: and hence the ease with which it is changed into these principles by a variety of substances, particularly by the fixed alkalies and alkaline earths, which, seizing the elements of carbonic acid, set the ammonia free. To the decomposition of this principle is, therefore, chiefly owing an ammoniacal state of the urine, one of the most distressing conditions of this secretion, and one of the most liable to terminate in the formation of stone in the bladder.

Urea occurs as a natural ingredient in healthy urine, but sometimes in much greater quantity than usual; in which case it may be readily detected by the addition to the urine of a little pure

nitric acid, in such a way that the two shall mix gradually; when, after a greater or less time, according to the proportion of urea present, the peculiar crystalline pearly compound, which I here shew you, is formed. Urine having an excess of urea is usually of considerable specific gravity (between 1020 and 1030), and is often accompanied by many symptoms somewhat like diabetes, for which the complaint has been occasionally mistaken; but it differs from diabetes in being a curable disease, or at least, by care and attention, it can be so far subdued as to be rendered little troublesome.

The next substance on which I shall make a few remarks is the *cystic oxide*. This is of very rare occurrence, and is mentioned here rather as a curiosity. Its properties you will find detailed in all chemical works. One of the most remarkable of these, and by which it can be readily distinguished, is the peculiar smell it yields when heated. This, as it cannot be described, I here exhibit to you. From the little that is known of this substance, it would appear to be generally connected with organic disease.

The last substance on which I think it necessary to make a few remarks, is the *lithic acid*, and some of its products. This principle, in many points of view, constitutes one of the most important principles occurring in the urine. In the first place, it gives origin to stone in the bladder, in at least two instances out of three; secondly, combined with ammonia, it constitutes the basis of the most usual sediments occurring in the urine: combined with soda, it gives origin to the gouty chalk-stone, and sometimes to sediments in the urine, and even concretions in the bladder. When modified it is converted into the purpuric acid, the principle constituting the colouring matter of the lateritious and pink sediments, and which are generally essentially composed of the lithate of ammonia, as before mentioned.

The lithic acid, when pure, is a perfectly white crystalline powder, very insoluble in water, but readily soluble in alkalies, and forming various compounds with them. When first precipitated cold from its solution in potash, it exists in the state of a hydrate, and assumes the form of a bulky gelatinous mass, which does not begin to crystallize for a considerable time. This is a very important point connected with the pathological history of this principle, as the state above alluded to is that in which it is first separated from the kidneys, and often exists in the urine, and the knowledge of which will enable us to explain almost all the phenomena of lithic acid gravel.

The lithate of ammonia is principally distinguished from lithic acid by its greater solubility in water, and by its yielding am-

monia when treated with a fixed alkali. It often forms a portion of lithic calculi, but seldom entire calculi; and when this is the case, it generally occurs before puberty.

Where there is a strong tendency to the deposition of lithic acid in the urine, and the patient under these circumstances takes the carbonate of soda, the urine will often be found to contain the lithate of soda; and I have seen this substance occasionally constituting a considerable portion of a urinary calculus. Hence, for some years past, I have made it a rule to give the carbonate of potash when the lithic acid prevails in the urine. In explanation of these circumstances, it may be remarked, that the alkalies pass the kidneys when taken in large doses, and combine with the lithic acid either in the act of being separated, or after it has been separated by the kidney.

It remains, in the last place, to make a few remarks on the *purpuric acid.* I am induced to notice this substance here for two reasons; first, its great importance in a pathological point of view, as constituting the principal colouring matter of the various lithate of ammonia sediments; and secondly, because its existence has been denied by the French chemists, and been doubted by some in this country. With pure lithic acid, and a little ordinary dexterity, I do not consider it as at all difficult to prepare, and am quite at a loss to account for the failures that have been said to have taken place on the subject. The first step consists in dissolving as much pure lithic acid in pure nitric acid, rather diluted, as it will take up. The solution when concentrated and put by in a cool place, will soon deposit large transparent and colourless crystals, constituting the *erythric* acid of Brugnatelli. These crystals are to be dissolved in water, and while the solution is boiling hot, pure ammonia is to be dropped carefully into the solution till a full purple colour is produced. This (which I here exhibit to you) is the only delicate part of the operation; for too little or too much ammonia injures, if not altogether spoils, the results. The solution on cooling deposits the purpurate of ammonia in the form of an imperfectly-crystalline dark purple powder. To obtain the pure acid from this, it is to be dissolved in a solution of pure potash, by the application of heat, which expels the ammonia. The solution, then gradually dropped into diluted sulphuric acid, is again decomposed, and the purpuric acid falls down in the state of a yellowish or grey powder. It may be still further purified by dissolving it in pure concentrated sulphuric acid, and dropping the solution carefully into cold distilled water, when the purpuric acid is deposited nearly white, and as pure as it probably can be obtained.

The combinations of this acid with different bases (one or two

of which I here exhibit to you), form some of the most spendid tints in nature, and probably constitute the bases of the colouring matters of many animal products.

AMPUTATION OF THE NEAR HIND LEG OF A COW.

By Mr. W. Shield, *V. S., Arbirlot, Forfarshire.*

To the Editors of "The Veterinarian."

Gentlemen,

Having never read in your Journal any case of amputation in the lower animals, I herewith transmit you an account of one which I lately performed with success; the insertion of which in your valuable periodical will much oblige,

Yours, &c.

Wm. Shield, V. S.

October 12, 1831.

About the middle of July last, I was sent for by a neighbouring farmer to see a cow that had got her leg broken; but happening to be from home at the time, my father went, and found the near hind leg broken about four inches above the hock. The fracture being an oblique one, and the inferior end of the bone protruding through the skin, he tied it in the usual way, and desired them to keep it constantly wet with a mixture of vinegar and water. I went next day and saw her: the case appeared to be going on well, and continued to do so for about a month, when an ichorous discharge began to appear; but I still hoped to succeed in healing up the wound. The cow, however, got restless; and my hopes were blasted, and my labour proved fruitless.

Having now despaired of effecting a cure in the ordinary method, I made known my opinion to the owner, and proposed amputation of the leg, to which he at first agreed, and the time was accordingly fixed. But on the morning I was to perform the operation, he came to me and said he would not let the limb be taken off, because she was sure to die. This I did not relish well, as I had by that time procured a tourniquet and knife from a surgeon in Arbroath; and besides that, there were two or three surgeons coming to witness the operation. However, about ten days after he sent an express for me to come and see what I could make of her. I accordingly went: he desired me to take my will of her, and to do as I thought fit. I was still of the same opinion as

before; and fixed the following day for operating. I went, and took an assistant along with me; had the cow thrown and properly secured; and fixed the tourniquet a little above the place where I was to cut, to suppress the hæmorrhage. I performed the double flap operation. After making a circular incision through to the bone, then separating the muscles about three inches anteriorly and posteriorly for the flaps, I next tied the arteries; then sawed off the leg as close up to the muscles as I possibly could; and afterwards brought the flaps together, and stitched them with a strong thread; then bandaged the whole up, putting a little plaister on the bandages to make them stick, which was very difficult to do in consequence of the tapering of the leg. After the operation was over, and the cow again got into the house, I ordered them to give her some water to drink, which she took very freely; after which she began to eat some grass. The following morning I found her very dull and feverish: I gave her some physic, and desired them to give her plenty of water to drink. Next day the physic had operated well, increased her appetite, and she every day got better, and is now able to go to the fields and seek her meat the same as before.

From the complete success of this operation, it is my opinion, that, in almost every case of a fractured leg, where the ordinary method of cure proves ineffectual, the life of the animal may be usefully preserved by the method of amputation which I have adopted.

ON SHOEING GENERALLY, AND PARTICULARLY ON THE EXPANSION BAR SHOE.

By Mr. W. Henderson, *V. S., Edinburgh.*

A great deal has been said and written by one veterinary author after another on the most proper method of shoeing horses, until we are almost tired of the subject; and as far as we have heard or seen, their plans, patents, and systems have seldom or never fulfilled the sanguine expectation of the inventor, nor have they given that real satisfaction the public expected: and we find the more they have deviated from the general mode of shoeing, the more have they erred; and perhaps it would have been better for some of them had they contented themselves with trying to improve the shoes already forged (for I am sure we have enough of them), than puzzling their brains about the formation of shoes which, being in general too complicated, tend more to perplex and stupify the artist who makes them, than to

advance the science we wish to improve. Therefore that shoe which can be made with despatch, and is simple in its construction, providing it is got up on a plan concordant with the functions of the foot, and will stand wear and tear, and can be sold at a moderate price, will most undoubtedly be the best shoe for general use. To prove the truth of this statement, we have only to look back and examine the different shoes in use for these last thirty years; and we shall find that the shoe which was most approved of then is the very same that is most in use at the present day. I mean the seated shoe recommended by Messrs. Osmer, Clark of Edinburgh, and Moorcroft of London, which, with two or three strokes of the hammer, can be made to answer any kind of foot, whether concave or convex, at the same time affording an equal tread for the animal, will remain on the foot at all kinds of work, and in my opinion is, and will be, the best shoe for general use for some time to come.

I have observed, when horses have been properly shod by a careful workman with this shoe, the feet have remained good, sound, and as open at the heels as if they had been running at grass. But in cases where the foot is ill prepared for the shoe, and the shoe is not properly fitted to the foot, what can we expect but an alteration in its natural formation, and disease of the sensitive parts.

There are many who think very lightly of shoeing, and run away with the idea, that, although badly executed, it seldom or never produces chronic lameness. I, however, from experience, can inform such advocates, that I have seen many a valuable horse entirely ruined by one bad shoeing: for example, a horse is brought to the forge, a shoe is put flat on the sole, the nails are pressing at their necks too near the sensitive foot, the horse is led home, goes to exercise three or four mornings, still keeps sound, until such time as he is ridden a distance of ten or twelve miles at the top of his pace, when he falls amiss, comes home lame, and ten chances to one if ever he recovers. The punishment the delicate parts of the foot has suffered sets up inflammation, the foundation of navicular lameness is laid, and if not a cripple for life, he generally loses a considerable share of his original elastic action. This is one instance; but I could state many more were it not for taking up too much room in your Journal.

"Side-nailing" has of late been much recommended, approved of, and followed by many practitioners; for which, I believe, we are indebted to Mr. Turner, of London. For light saddle horses, and such as are not given to throw their shoes, and even with some good footed heavy horses, I have found it to answer very

well, and the feet improve when shod on this plan; but no man of any experience would think of shoeing hunters so, except he removes the one-third of it (the unfettered portion), and then it will remain on the foot as well, if not better, than any other. When it is applicable to shoe horses with corns, contracted and weakly made quarters, with this shoe, and the inner heels get strong and expand by being exposed to the friction of the road, I see no reason why we should not shoe hunters' fore feet with the three-quarter shoe, and then the "side-nailing" will answer for road or field.

Having more than once found myself in rather awkward circumstances with some of my employers, from their horses occasionally losing a shoe during the hunting season, I am always very careful that my workmen have good nails, shoes properly fitted, and the holes of every shoe well placed; but even when all pains are taken, and your shoes nailed up to each heel, they will come off in heavy ground. I however must observe, that there is no fault that can be committed in the forge department of our profession more apt to give offence (pricking excepted) than that of losing shoes.

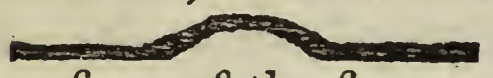
The tablet expansion shoe I think highly of; but as a shoe for general use it must now and then give place to some other, as I find that not one workman out of ten can make it properly; The ingenuity and unwearied zeal of the inventor, Mr. B. Clark, however, cannot be too much applauded by the profession; and the tablet expansion shoe certainly deserves a place in every well regulated forge. I have shod horses occasionally with this shoe; and although I have put clips at the heels to take off lateral nail pressure from the crust, I found a great deal of difficulty in *regulating the motion of the shoe so as to correspond with the expansion of the foot;* as I find the expansion of the feet of horses to vary according to the formation of the foot, the mode of action, weight of fore quarters, &c. &c.

The two great expansion of the shoe has been found to prove highly injurious to the wall of the foot, by tearing it away opposite to each nail hole; the pressure of the nails on the inside of the crust being more than it could bear; and in the course of two or three shoeings your horse will scarcely have any foot at all. Then is the old adage fulfilled, "No foot no horse;" for you must lose the use of him until his hoofs grow.

When we call to mind the great variety of feet we meet with in the course of our practice, and various other circumstances, it will be found a very difficult matter to invent a shoe of this kind to combat all we have stated; but, in my opinion, the nearer we arrive at forming a shoe to act as a portion of, or in unison with the

wall of the foot, the more likely are we to succeed in what we want.

I believe that, with the majority of practitioners in our art, it is customary to apply bar shoes for weak heels, diseased heels, and to improve contracted feet, &c.; and for these various purposes I have found them answer very well; but still I thought there was something wanting in the shape of an improvement; and often has the idea of inventing a real expansion bar shoe occurred to me, which I think I have, at last, in a manner perfected, and which is formed as follows:—

Make a common open bar shoe unwelded; cut it through at the toe, which has to be jointed with a plain over-lap or joint, generally used in hunting shoes; this joint is more difficult to make than the former, but is by far the neatest. You must now proceed to get up an elastic agent at the heels to *regulate the motion of the joint at the toe,* and to take the lateral pressure off the crust; which can be done by putting a piece of spring steel on, with two rivets on each side, of an arched form, thus,  the convex part of which to embrace the lower surface of the frog and the inner surface of the commissures; or, in plainer language, the frog surface of the bars, which will act as two clips or stays in steadying the shoe in its action, and taking the lateral pressure off the necks of the heel nails. A small portion at the posterior part should be grooved out, in order to make the spring fit flush with the surface of the shoe. In cases where you cannot get an artist capable of making this shoe on the plan stated, it may be a little simplified by putting a piece of black leather in the situation of the steel, which can be fixed in the same form.

The expansion of this shoe, or its operation, is seen remarkably well by nailing a piece of Indian rubber on the posterior part of the shoe; when you lay it on a plain surface, and then press the weight of your body on it, you will perceive the two sides recede from each other.

I do not pretend to say that this shoe will answer every kind of foot, nor do I wish it. "The sick require a physician; those who are in good health require none." What I mean to infer from this is, that I only recommend this shoe to be applied to such feet as have lost all power of expansion in themselves, where the frogs are squeezed to death, and partly absorbed, from the compression of the sides of the heels. The expansion bar-shoe will be found a good agent in such feet, in bringing back their original tone. We know for a fact, that if the action of any organ in the human body be long in a state or rest, it becomes weak, and ultimately useless. Now the same with the foot after having been

long "imprisoned" by a bad mode of shoeing, and other exciting causes. Whenever the inferior surface of the foot becomes narrower than the upper, it continues to contract more and more; but whenever we let go the two fixed points, which are the lower edges of the crust, and apply an agent below to force the heels open, we are then more likely to succeed in bringing back the natural shape and tone of the foot. In fact, except we have an *operatin gagent below* we never can do any good; and it is in this way, I conceive, the steel spring likely to act in breaking concussion, and in forcing the heels open.

Now, Mr. Editor, while I duly estimate the merit of the opinions of Professor Coleman and Mr. B. Clark, I humbly conceive that I have succeeded in improving the common bar shoe, so as to be capable of reconciling their mutual disagreement, by giving pressure to the frog, and allowing expansion to the wall of the foot.

W. Henderson.

Edinburgh, 17th October, 1831.

ON BURUSATEE.

By Mr. John Tombs, *V.S., Bengal Artillery.*

[Continued from page 542.]

Symptoms continued.—The generality of people in India, when they perceive an ulcer or a sore in any part of a horse's body, immediately say that he has got the "burusatee," which is a mistaken notion. During the prevalence of the periodical rains, the flies are exceedingly numerous and troublesome: they are continually annoying and teazing horses, and wherever they chance to bite, irritation is the consequence in the part. If the animal be permitted, he will either rub or bite the part stung by the flies, and produce a sore which is mistaken for burusatee. It is perfectly true, that the sore may become a burusatee one; for if the flies have access to a horse that has got burusatee ulcers, and to another that has got abrasions on the skin, the abraded parts will be inoculated, and degenerate into burusatee sores. This is the only way that I can account for the disease being communicated from one horse to another.

The penis is sometimes frightfully swollen in entire horses, who appear to be more prone to burusatee than others. What makes emasculated horses less liable to this disease than entire horses, I cannot with certainty say. Whether it results from the change that the system is known to undergo after castration, or the diminished action of the genital organs, remains to me a matter of

doubt. One thing more to be observed in this respect is, that in stallions erection is frequently taking place; and the penis being so often glutted with blood, may probably render it more susceptible of burusatee in them than in geldings. In acute cases, the pulse is quickened, and respiration slightly embarrassed: the appetite in general is tolerably good. In old confirmed cases troublesome ulcers form round the coronets, and the feet sometimes become cankered.

Treatment.—In acute cases, where the parts are highly inflamed and considerably swollen, venesection should be resorted to, especially in the incipient stage of the disease. Fomentations of heem (heem is an indigenous and perennial plant in India) will be found useful. Purgatives should be administered. The sores should be excluded from the external air, to prevent the flies from irritating them and conveying the disease to others. Fine tow or lint may be applied, to absorb the matter that is discharged from the mouths of arteries. The animal should live abstemiously, and have walking exercise; but by no means should he be allowed to walk in the wet grass, particularly if there is any dew. I have known burusatee ulcers make their appearance in the extremities in twenty-four hours after the horse had been exercised on wet grass and his legs not rubbed thoroughly dry afterwards. In the advanced stage of the disease I have applied acid. muriatic. to the parts affected once a-day, and alum twice a-day; and administered sulphate of copper internally with good success. If the penis is much swollen and schirrous after the inflammation has subsided, I generally amputate it, as it otherwise would be annoyingly dependent. I have employed a variety of remedies, too numerous to mention, and the majority of them proved fruitless. The following are still used by some practitioners to the sores: sulphate of copper, quick lime, charcoal, sulphuric acid, corrosive sublimate, &c. Last year, when my regiment was stationed in Upper India, I had a vast number of inveterate cases; and could not get rid of some of them until the cessation of the rains.

I cannot say any more about this subject at present; but in a short time I will send you the worst case of burusatee that I ever met with. Before making my bow to you for the present, I wish to let you know that we have self-conceited and illiterate farriers abroad as well as at home. In July last, 1830, an assuming native farrier came to me, and haughtily said that he could cure the burusatee, and that he wanted a job; not knowing that I was a veterinarian. I told him that his services would be invaluable if his assertion was correct; and, anxious to put this knowing one's abilities to the test, I took him to my stable

and set him to work on a horse of my own, and told him if he could cure him I would remunerate him very handsomely. Blacky paid unremitting attention to his patient for three weeks, when I observed to him, that he got progressively worse under his treatment. He said that he forgot to give him a dose of physic; but he would do it: and sure enough, this demi-semi-descendant of Mahomet did give him one, and a rattler too, as stable-men say. The horse next morning was labouring under villous inflammation of the bowels; but I saved him by having recourse to prompt and active treatment. I asked him what dose he exhibited: he very modestly replied, Only two ounces of country aloes. Woe be to my horse had they been Barbadoes. I was rather annoyed at this black diamond, and told him to go to Mecca to perform his ablutions before he attempted to cure burusatee. His never-but-once-failing remedy proved to be salt and alum.

The terminations of burusatee are, resolution, tuberculous lungs, &c.

THE VETERINARY COLLEGE PHARMACOPŒIA.

[Continued from p. 565.]

Ointments.

Alum Ointment.

Common turpentine, lard, each ..... one pound
Alum in powder ..... one pound and a half
Melt the lard and turpentine, then add the powdered alum; stir till cold.

N. B. In summer use tallow for the lard, or one-fourth oil with tallow in the winter.

For what purpose this ointment can with propriety be used I am unable to divine. As an astringent grease ointment, it must be worse than useless; for, not to say that an astringent should rarely be applied in the form of *ointment*, the suppurative quality of the turpentine, and the desiccative one of the alum, would make a strange and unsurgical jumble. As a torturing caustic it may have effect, or perhaps it may be admissible in thrush, but I wish the turpentine away.

Blistering or Cantharides Ointment (strong).

Turpentine ointment ..... two pounds
Cantharides, in powder ..... eight ounces
Euphorbium, in powder ..... two ounces
Soften the turpentine ointment by heating it, then stir in the flies and euphorbium powder.

Right glad am I to find a blistering ointment still retained in the College Pharmacopœia, for I am well assured that a good blister, perhaps occasionally followed up by a second, or even a third, is worth a thousand setons, for splent, spavin, curb, windgall, old strains, and inflamed lungs. The ointment that is retained must, however, be somewhat reformed. We must consign the turpentine and the euphorbium to the uneducated farrier, as uselessly torturing instead of vesicating, and too often seriously blemishing. If lard were substituted for the turpentine ointment, and the euphorbium omitted, there would result an ointment which would rarely fail to rise, and would never blemish.

Blistering or Cantharides Ointment (mild).

Lard ..... four ounces
Melt, and add
Oil of turpentine, and Cantharides in powder, each one ounce; stir till cold.

It is a great pity that the writer or copyer of this pharmacopœia could not take a little care and not blunder so egregiously. Erratum, for *mild* read *stronger* or *blemishing!* ay, although the euphorbium is omitted: for if this ointment with the oil of turpentine is but rubbed well enough in, there will be as pretty a place, totally devoid of hair, as ever farrier would like to see. Let us leave the turpentine and the euphorbium to those from among whom we are emerging.

Quicksilver Ointment (strong).

Quicksilver ..... one pound
Balsam of sulphur ..... one ounce and a half
Rub well together, and add lard ..... one pound.

I have no objection to this recipe, except the recommendation of the balsam of sulphur. If, however, its use in the veterinary pharmacopœia be confined to the oxydizing of mercury, I will not say much about it, except that it gives an unnecessary black hue to the ointment, and a strong smell of sulphur, which might as well be avoided. A small quantity of rancid lard would be much preferable for the first rubbing down of the mercury.

Quicksilver Ointment (nitrate).

Quicksilver ..... three ounces
Nitric acid ..... six ounces
Dissolve:
Lard ..... eight ounces
Olive oil ..... twelve ounces
Melt together, add the acid, &c., and stir till cold.

A good stimulating and detersive ointment. In its full strength it is an escharotic, but when mixed with double the quantity of lard it has been found very useful in some mangy affections, and particularly those of the eyelids of all domesticated animals. It is the only cure for psorophthalmia in the dog.

Turpentine Ointment.

Common turpentine ..... one pound
Lard ..... three pounds
Melt together.

N. B. In summer use tallow for the lard, or one-fourth oil with tallow in winter.

There can scarcely be a better digestive ointment.

Powders.

Astringent Powder (strong).

Sulphate of copper
Armenian bole, in powder, each one pound: Mix.

"Strong" with a vengeance, which no irritable sore or state of grease would bear for a moment, and which would eat into and corrode the healthiest wound. Besides, I doubt not a little the astringent properties of the ingredients. The astringent property of sulphate of copper I should at once deny. I might admit the bole to be a *desiccative* and a useful one; but this is a somewhat different thing, and, in a standard pharmacopœia, words should be applied in their right sense.

As a desiccative application, and at the same time an astringent one, if I am permitted to keep the bole, and to substitute one ounce of alum instead of one pound of sulphate of copper, I should have a powder preferable to any ointment I could use in several varieties of grease.

Solutions for Lotions.

Solution of Alum.

Alum ..... half a pound.
Boiling water, seven pints and a half: stir till dissolved.

I have no objection to this as a grease wash, except the relative quantities of the alum and the water. Seven pounds and a half of boiling water may dissolve ten pounds of alum, but when cold will not hold half a pound in solution. It is, however, true that, when the little extra alum is deposited, we shall have remaining, that which we want, a saturated solution of this salt.

Solution of Subacetate of Lead.

Semi-vitreous oxyde of lead, litharge	thirty-six ounces
Vinegar	one gallon.

Boil to six pints, and strain.

Why not call this by its recognised name, Liquor plumbi subacetatis, or Goulard's extract? This is, however, better than the aqua vegeto, as it used to be written in the book. There is one objection, however, to the prescription, that while, in the recognised pharmacopœias of Dublin and of London, the former orders a pound of litharge while the vinegar will dissolve only ten ounces, and the London one directs the outrageous quantity of two pounds, the Veterinary College outherods Herod, by directing thirty-six ounces to be used. It should also have been added, that the vessel in which the preparation is made should be either a glass or a porcelain one.

This solution is never used in its full strength, therefore we have

Solution of Subacetate of Lead (dilute).

Solution of subacetate of lead	
Rectified spirit, each	two drachms
Water	one pint.—Mix.

N.B. If used for the eyes, two pints of water, and *(meo periculo)* no spirit.

A very useful cooling lotion, when applied to a wound or abraded surface. The cold water and the spirit would form a good evaporating and therefore cooling lotion in contusions and sprains; but I much doubt whether the lead can have any effect through the hair and thick skin of the horse. The groom, however, is fond of a Goulard lotion, and, as it cannot do harm, it is a very justifiable placebo. Dilute tincture, or vinous spirit of opium, will be a preferable collyrium.

Solution of Sulphate of Copper.

Sulphate of copper	two pounds
Boiling water	one gallon.—Stir till dissolved.

This will form a saturated solution of blue vitriol, and is useful as a stimulant to indolent wounds and ulcers, and, alternated with the alum-wash, a good application for grease.

Solution of Sulphate of Zinc.

Sulphate of zinc	two pounds
Boiling water	six pints.—Stir till dissolved.

This is likewise a saturated solution, and is one of our best injections in quittor. It is also a useful stimulant to indolent ulcers and unhealthy wounds.

Stopping for the Feet.

Liquid tar	four ounces
Oil of tar, or turpentine	two ounces.—Mix.

Of liquid tar alone I have no good opinion as a stopping; it is too heating and drying: mixed with the turpentine, it is worse, because it is more apt to dry and cake in the hoof: mixed with oil of tar (a strange compound, however, and not very chemical—a combination of the matter distilled, and that which is obtained from it by distillation), it is better, on account of the penetrating quality of the oil, or spirit of tar. For suppleing the feet, a compound of oil of tar and fish-oil, in the proportion of one pound of the tar to two pounds of fish-oil, will be useful; and, for a common stopping, equal parts of tar and grease, and an eighth part of resin, cannot be beaten.

Tinctures.

Compound Tincture of Myrrh.

Gum resin of myrrh, powdered.....	one pound
Aloes	one pound
Rectified spirit.....	one gallon.

Macerate fourteen days, often shaking it up, then pour it off for use.

This is generally recognised by the name of compound tincture of aloes, or tincture of myrrh and aloes. It is one of the best balsams for wounds that the practitioner has, and, indeed, supersedes every other.

Tincture of Opium.

Opium in powder.....	two ounces and a half
Proof spirit.....	two pints.

Macerate fourteen days, and strain.

This is the common laudanum, the use of which is sufficiently known. On some future opportunity, I may consider the omissions of this strange, incongruous document; for the present, I conclude with wishing that it may soon undergo that reform which is now so properly applied to greater things.

A Practitioner.

A LETTER ON A CANAL IN THE MEDULLA SPINALIS OF SOME QUADRUPEDS.

IN A LETTER FROM MR. WILLIAM SEWELL TO EVERARD HOME, ESQ., F.R.S.

[Copied from the Philosophical Transactions of the Royal Society, A.D. 1808.]

Sir,

According to your request, I send you an account of the facts I have ascertained, respecting a canal I discovered in the year 1803, in the medulla spinalis of the horse, bullock, sheep, hog, and dog; and should it appear to you deserving of being laid be-

fore the Royal Society, I shall feel myself particularly obliged by having so great an honour conferred upon me.

Upon tracing the sixth ventricle of the brain, which corresponds to the fourth in the human subject to its apparent termination, the calamus scriptorius, I perceived the appearance of a canal, continuing by a direct course into the centre of the spinal marrow. To ascertain with accuracy whether such structure existed throughout its whole length, I made sections of the spinal marrow at different distances from the brain, and found that each divided portion exhibited an orifice with a diameter sufficient to admit a large sized pin; from which a small quantity of transparent colourless fluid issued, like that contained in the ventricles of the brain. The canal is lined by a membrane resembling the tunica arachnoidea, and is situated above the fissure of the medulla, being separated by a medullary layer: it is most easily distinguished where the large nerves are given off in the bend of the neck and sacrum, imperceptibly terminating in the cauda equina. Having satisfactorily ascertained its existence through the whole length of the spinal marrow, my next object was to discover whether it was a continued tube from one extremity to the other: this was most decidedly proved, by dividing the spinal marrow through the middle, and pouring mercury into the orifice where the canal was cut across: it passed in a small stream with equal facility towards the brain (into which it entered), or in a contrary direction to where the spinal marrow terminates.

By many similar experiments, I have since proved that a free communication of the limpid fluid, which the canal contains, is kept up between the brain and whole extent of spinal marrow. I have consulted the most celebrated authors on comparative anatomy, but do not find any such structure of those parts described; and as it is not known to you, I may presume that it has not been before taken notice of.

I have the honour to be,

Sir, your obedient, faithful servant,

WM. SEWELL.

We are really ashamed that we have not earlier put upon record, in a veterinary periodical, this important discovery of Mr. Sewell, of the central canal of the spinal chord.

It appeared in the Philosophical Transactions many years before the exposition of the six columns of that chord by Sir Charles Bell. This canal must be the necessary consequence of such a construction of the chord. It is singular how often physiologists

have been on the very brink of the grandest discoveries, without the slightest suspicion of that which posterity has acknowledged to be the plain and inevitable consequence of certain theories and facts.—EDIT.

AN UNUSUAL COLLECTION OF TUMOURS IN THE ABDOMEN AND THORAX OF A HORSE.

By Mr. BENJ. FERRABY, *Bourn, Lincolnshire.*

ON the 7th ultimo I was called to attend a roan coach-horse, (Jocko), fourteen years old, the property of Lord Willoughby de Eresby, that had been sent down from London, where he had for some time been under the care of Mr. Mayor, who, as I was informed by his lordship's groom, had treated him for diseased kidneys, since the animal had frequently discharged bloody urine. He had been most rapidly wasting, and was now sadly emaciated.

On my arrival I found him turned to grass; the pulse and respiration was natural, and he seemed to be free from pain, except when discharging his urine, which was not then tinged with blood. I did not give any medicine, for I was willing to hope that change of living might afford him some relief; but although apparently healthy in every other respect, he continued to waste with even increased rapidity. Yesterday his lordship ordered him to be shot. I am sorry that I was not present when they began to open him, but as soon as the groom discovered the extraordinary appearance of his inside, I was sent for. The right kidney was enormously enlarged, and seemed to be enveloped in or to constitute a tumour forty-two pounds in weight. The pancreas, liver, and diaphragm, were covered with tumours attached by pedicles, varying from one ounce to seven pounds in weight. One large polypus was attached to the diaphragm, within the thorax; and the whole, when collected, weighed 110lbs., or 7 stone 12lbs.

Oct. 4, 1831.

ON POLYPI OF THE NOSTRILS IN THE DOMESTCATED ANIMALS.

By T.

BY a polypus I mean an excrescence or tumour, varying in size, structure, and consistence, attached by a pedicle to a mucous surface. Portions of adipose matter, enlarged glandular bodies, and sarcomatous tumours of different kinds, are occa-

sionally detached from the serous membrane of the abdomen and thorax, and hang loose and floating there; and on account of the horizontal position of the bodies of quadrupeds, they sometimes, in sudden and violent motion, entangle themselves round small portions of the intestines, and produce strangulation and death. The true polypus is attached to mucous membranes, and is usually found in the nostrils, the pharynx, the uterus, or the vagina. Tumours have been found hanging loose in the ventricles of the heart; and in the larger bloodvessels there have been accumulations of the fibrine of the blood, which, in these ramifications, the body and head, being in the aorta, or even in the heart itself, and the limbs in the smaller vessels which branch from the aorta, have presented the appearance of an animal singular and frightful, almost beyond description. This is the polypus in the heart, and which, according to the opinion of the farrier, and even the veterinary surgeon, too, has destroyed so many animals.

The polypus usually adheres to some portion of the superior turbinated bone, or it has come from some of the sinuses connected with that cavity. It escaped, while small, through the valvular opening under the superior turbinated bone into the cavity of the nose, and there attained its full growth. The polypus of the quadruped is not the compressible elastic fungous one *(polypus elasticus)* which is described by writers on human surgery as occupying the nostrils of their patients. The bleeding polypus is not known; but the small portion of bloody fluid that often appears at the nostril, proceeds either from the vascular mucous membrane with which the tumour is surrounded, or from the membrane of the surrounding cavity abráded by long and violent pressure.

Some polypi have a fibrous or almost cartilaginous structure, and others appear to be composed of various little tumours agglutinated together. They are formed originally under or within the membrane by which the nasal cavity is lined, but no better account can be given of the cause of their appearance than that of tumours in other parts of the body. They evidently, however, have a constitutional origin: they are frequently hereditary, and the animal in which they have once appeared is subject to a return of them.

By some means, probably the increasing weight of the tumour, and being in a dependent situation, it is gradually detached from its base, and forces with it the soft and easily distensible membrane of the nose. As the polypus continues to descend, this portion of membrane is farther elongated, and forms the pedicle or root of the tumour:—a root it is not, for it is no continuation of the substance of the tumour, but a mere duplicature of its invest-

ing membrane. How this may be with regard to the fungous bleeding polypus of the human subject, I am not able to determine. The twisting of the pedicle, and tearing it out by the root, may be good practice with regard to the human being, but cannot be justified where the pedicle is a mere cord by which the polypus is suspended, and forms no continuation or part of its substance.

The polypus, when it hangs free in the nasal cavity, is usually of a pyriform or pear-like shape. It is that form which it would naturally assume from the gradual distention of the membrane, pressing on every side of the tumour, and opposing its chief resistance at the base.

It varies in weight, from a few drachms to three or four pounds.

I will suppose a veterinary surgeon required to examine a horse that has some difficulty of breathing, apparently arising not from disease of the lungs, but obstruction of some of the air-passages. He finds that there is a greater discharge than usual of mucus from the nostrils, or from one of them, and the mucus sometimes highly tinged with blood. Occasionally pure blood runs from the nose; and if he places his hand before the muzzle to ascertain the heat of the breath, he feels an unequal rush of air from the two nostrils, or probably it is felt at one nostril alone. He begins to suspect the real state of the case; and, bringing the horse into the full light, he discovers, higher or lower in the nostril, the rounded base of a polypus.

He must, however, take care. He must not mistake the cartilaginous prolongation of the anterior turbinated bone for a polypus when he sees it spread upon the false nostril, and enlarged and prominent from the general thickening of the mucous coat; nor the prolongation of the posterior turbinated bone, not quite so much developed; nor any rounded clot of blood which may have escaped through the valve under the posterior turbinator, and be retained there by the separated fibrine. This has been done by men of some repute.

The case, however, shall be clear enough. How is the surgeon to proceed? Can he lay hold of the polypus by the finger, or the forceps, or (for these tumours do not possess much sensibility) the tenaculum? To ascertain this he will cast the horse, and fix the head in a position to take the greatest advantage of the light. If he cannot fairly get at it by any of these means, he will let it alone. It will continue to grow—the membrane constituting the pedicle will be lengthened—and the polypus will descend, and be easily got at. Time and patience will effect wonders in this and many similar cases.

The human surgeon speaks of the uncertainty of the appear-

ance of the polypus. In damp weather it enlarges, the pedicle becomes more distensible, and the tumour hangs lower in the nasal cavity. If the weather is dry, and the membrane of the nose dry, the pedicle becomes somewhat dry too, and contracts, and the tumour itself diminishes, and it rises higher in the cavity; and that which can be plainly seen to-day will be invisible to-morrow. I have not had opportunity to observe this in the horse; but in polypus of the vagina in bitches, I have found the tumour close to the external orifice on one day, and on the next day there was not a vestige of it to be seen; and, probably, on the third day it has been lower than on the first, and more easily seized and disposed of; but I confess I have not traced any connexion between these changes and the changes of our variable atmosphere. Here again is occasion for the exercise of patience. If we cannot fairly reach the tumour, do not let us go to work at disadvantage. To-morrow, probably, the pedicle will have lengthened, and we shall have a better chance.

We are now bringing down the tumour for operation: we must not use any great force. The polypus with which we have to do is not one that must be torn out by the roots. It is not the fungous bleeding polypus the pedicle of which may be a prolongation and portion of itself. The pedicle here is a mere duplicature of skin; it may be divided in any part of its course, and, divided at any assignable point, the tumour may with equal advantage be removed. Beside this, if the pedicle is attached to the delicate gossamer fabric of the turbinated bone, it cannot be forcibly torn thence without portions of the bone being likewise detached: and, connected with this, we should recollect that there is a disease of the nostril of the horse which is the occasional result of injury of almost every kind inflicted on the schneiderian membrane.

The tumour being brought down, a ligature must be passed round the pedicle, and as high up as it can conveniently be placed. If the polypus can be then returned to the nose, the animal will suffer very little inconvenience; and in a few days the polypus will slough off, and the pedicle will contract, and gradually disappear.

If the polypus is so large that it cannot be well returned, when it is brought down, we must, notwithstanding, use the ligature. If we draw it but tight enough we shall cut off the supply of blood to the tumour, and we may immediately excise it, although it would be better if a few hours could pass between the application of the ligature and the excision of the part. Except the pedicle is exceedingly thick there will be little or no hæmorrhage. Should some bleeding occur, it will probably soon stop, or may be stopped by the cautery, which should however be avoided if

possible; for our object is to produce as little irritation as may be in the membrane, and the actual cautery will be applied with considerable difficulty in the cavity of the nose.

In very bad cases, when the tumour cannot be drawn without the nose, it may be necessary to slit up the ala or side of the nostril. It will be better, however, not to cut through the false nostril, for it consists of a duplicature of such thin integument, that the stitches can hardly be retained in it, when the horse will be continually snorting at the least inconvenience. It will also be difficult to bring the edges of this thin skin accurately together again, or, if this be effected, there is scarcely life enough in it for the parts readily to unite. The false nostril should be avoided, and the incision made along the lateral edge of the nasal bone, beginning at its apex or point. The flap will then conveniently turn down, so as to expose the cavity beneath; and there will be sufficient muscular substance to secure an almost certain union by the first intention. The nostril being opened, the pedicle will probably be displayed, and a ligature may be passed round it, as already recommended; or, if the pedicle be not actually in sight, it may probably be solicited or pulled down.

A French surgeon has advised, if the pedicle is not even now to be readily got at, to apply the trephine higher up; but it should be recollected, that there is little or no chance of finding the pedicle in the superior meatus, and that, lower down on the side of the face, there is but one spot at which the trephine could be applied without its opening upon the interior of one or the other of the turbinators, where the pedicle never exists, and could not be got at. That spot is where, in the central meatus, the turbinated bones recede from each other, a little below the suture between the nasal and the superior maxillary, and about two-fifths of the distance from the apex of the nasal to the frontal bone.

If, perchance, a fungous bleeding polypus should be met with, and it should be deemed right to detach it with the forceps, let the cautious procedure of the surgeon be adopted. While torsion is used let there be no pulling at the root. The pedicle will then give way at the weakest part, there will be no hæmorrhage, and there will be no lacerated membrane above, or detached bone, to produce malignant ulcer, or cancer, or glanders. Simple excision is never to be permitted, on account of the impossibility of stopping the bleeding without the cautery, and the difficulty and danger of applying that within the nose.

When a large polypus partially protrudes at the nose, and cannot be got fairly down, the farriers' method of cutting away all that can be got at should by no means be adopted. The

obstruction within is not removed when the external protrusion is cut away. The animal is not and cannot be in the least degree relieved; but the case will be aggravated, for it will probably be necessary to apply the cautery to arrest the hæmorrhage, and that will cause inflammation and enlargement, and the cavity will be more distended—possibly the septum will be partly forced into the other nostril, forming another obstruction there, and the very bones of the face will be disunited from each other. The exposed surface of the tumour thus mangled, and the ulcers made by the hot iron will generally take on a malignant character, and fungus, gangrene, or cancer will succeed.

An attempt to destroy the polypus by caustics will prove even more absurd and injurious.

I will conclude by relating one or two cases of polypus. The first is taken from "The Veterinary Instructions," by Chabert, a book not so well known, nor so highly valued, as it deserves.

A horse in one of the cavalry regiments had been observed gradually to lose flesh, and he was quickly and painfully blown at every little extra-exertion of speed. After a while, fœtid matter began to be discharged from the off nostril, and the gland on the same side became enlarged, and the horse was supposed to be glandered by the serjeant farrier (for there were no cavalry veterinary surgeons then in the French service), and was treated accordingly. At length, to the confusion and astonishment of the man, a fleshy substance began to appear in the nostril, and which rapidly increased in size. The tumour continued to grow, until a great mass of it protruded, when the farrier, without appearing to be aware of the nature of the disease, or attempting to bring down the protruded part, cut it off. No benefit followed; the nostril was still stopped, the breathing laborious, and the horse daily becoming thinner and weaker.

A twelvemonth had now passed since the first appearance of the polypus, when the case attracted the attention of M. Icart, the surgeon of the regiment. More had protruded than at first It was hard and glistening below, and fungous above; the bones of the nose were disjointed, and the face sadly deformed.

He cast the horse, and slit up the nostril, when he not only found it completely filled by the polypus, and the septum narium bulging into the other division of the cavity, but, from long continued pressure and inflammation, it adhered to the membrane of the nose in so many points, and so extensively, that it was impossible to get round it, or move it. He contrived, at length, to fasten a crucial bandage around it, and it was torn out by main force. Four considerable portions of the turbinated bones were brought away with it.

The hæmorrhage was excessive; he, however, filled the nostril completely with tow, and brought the divided edges of the false nostril together by sutures. In three days they were all torn out by the incessant attempts of the animal to get rid of the obstruction; but the horse eventually did well. The polypus weighed two pounds and seven ounces.

M. Rigot, one of the French veterinary professors, relates a case of polypus of the nose which he treated successfully.

A small tumour appeared in the right nostril, too high up to be got at. It seemed to be stationary, and of the same size for a considerable time, when it suddenly began to grow. It soon appeared to be as large as a man's fist, and still increased, and occupied the whole cavity, pushing the septum into the left nostril, displacing the bones, and threatening immediate suffocation. It was red, and very hard.

The nostril was slit up, the pedicle cut asunder close to the bone, and the cautery applied to arrest the hæmorrhage, and *prevent the reproduction of the tumour.*

A curious case came a few years ago before one of the provincial courts of France. A farmer purchased a four-year-old horse at a fair. A slight discharge was observed from one nostril, accompanied by cough, and some thickness of breathing. This was not thought extraordinary, as it was the *strangle age.*

The horse was put to light work, and the usual remedial measures were adopted for his supposed condition; but he became worse, and at length could not be used.

The purchaser attempted to return the horse, but this was resisted, on the ground that the term of warranty had expired.

The case was brought before the provincial court. A veterinary surgeon was appointed to examine the horse, who deposed that there was a polypus in one of the nostrils, but so high up as scarcely to be seen, and that would have escaped his observation had not his attention been particularly directed to it; and that he believed, from what he could gather of the history of the case, that the polypus existed at the time of purchase. On this the court determined that the horse should be returned, although the term of warranty was expired, on the ground, that it was one of those obscure cases of unsoundness, the existence and the nature of which could not have been discovered within the prescribed time.

Of polypus in the nasal passages of cattle there is but one case on record. One instance of it, however, has occurred in my practice. A cow seemed to be anxious to eat, and was otherwise in good health; but occasionally she was unable to swallow, and the pellet was returned with an effort resembling vomiting. This

increased until she was scarcely able to eat, and was rapidly losing flesh. I caused one of the pieces of wood through which the œsophagus pipe is usually passed to be made with an aperture sufficiently large for my hand to pass. The cow being placed against a wall, and her head tolerably secured by a rope placed round her horns, and drawn up by a pulley passing over a beam, and the mouth-piece well fixed, I passed my hand into the fauces, and distinctly felt a round body, moveable, and attached by a cord, the extremity of which I could not get at,—in fact, a polypus. I seized it with a pair of strong forceps with deeply roughened blades, and attempted the removal by torsion. The third turn being completed, the pedicle gave way, and a polypus nearly half a pound in weight was brought out.

THE VETERINARIAN, NOVEMBER 1, 1831.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

IN looking over an old French work, we found the lecture which Bourgelat, sixty years ago, used to deliver to his pupils at the commencement of his course, and which he caused to be printed and distributed among them, as containing, in his estimation, the grand principles of veterinary practice. It is a curiosity, as embodying the sentiments of the first professor of the French school on the most important points of theory and practice; and giving us a notion of what the best veterinarians thought and inculcated in the infancy of our profession, and, indeed, twenty years before the first English school had existence. Separate from this, there is so much good stuff in it, and so applicable to the present moment, when all our schools are or ought to be opened, that we are assured our readers will thank us for presenting them with a literal translation of it.—EDIT.

DISEASE is the fatal lot of all organized beings: man, animals, and plants are alike subject to it.

The life of the animal, or of man, may be perfect or imperfect. In the first case he is in health, in the second case he is diseased.

The state of disease, then, is an intermediate one between life and death, and sometimes bordering more upon the one, and sometimes upon the other: for, health consisting in the exact and regular accomplishment of all the proper functions of the machine, or the actual and unfettered faculty of exercising them perfectly, and death being the total annihilation of that faculty, and consequently the entire and absolute cessation of these functions, we cannot admit or conceive of any other idea, in the interval which separates these two extremes, than that of an alteration or derangement which subverts more or less essentially, and in a manner sufficiently evident in the whole frame, or in certain portions of it, the order and harmony of these movements. In other words, the alteration of structure or function opposed to a state of health, but more or less distant from the fatal termination of life, constitutes precisely that which we denominate by the general name of disease.

To preserve, then, domesticated animals from diseases to which they are liable, either by subjecting them to proper and salutary treatment, or preventing them from being exposed to the frequent causes of mischief—to palliate, in many cases, the evils with which they are actually attacked, evils obstinate and insurmountable, and which render them less valuable, but not absolutely useless—or to conquer and remove other complaints by all the means that science and experience can suggest; these are the proper objects which veterinary medicine proposes to itself.

These objects differ not from those of human medicine; and the same paths which lead to the knowledge of the maladies of man necessarily conduct to an acquaintance with those of brutes. The exact development of their form, and particularly that of the internal portions of the frame—the consideration of the situation, structure, shape, connexion, and usage of each—their correspondence and sympathy with each other—the laws by which they are moved and governed—and also the powers, and properties, and effects, of the different agents and substances which the earth prodigally produces; these are the source, the base, the true foundation of all medical theory, with whatever kinds of animals we have to do.

Veterinary medicine, then, exacts acquirements equal to those expected from the human practitioner: nay, we are compelled to enter into researches and details much longer, and much more difficult; for our study is not bounded by one animal, but it embraces many useful and valuable ones, and the construction of which, and, consequently, their functions and diseases, are widely different. Our labours are multiplied whichever way we turn our view; yet when we perceive amidst the difference of mechanism the bearing on one point, one important point, the perfect discharge of function, it is then that there are cleared up in our minds (and we can best, we alone can clear them up) many an interesting question of physiology and of medicine too, on which those who were ignorant of the influence of different organization on healthy and diseased function had pronounced erroneously, and as positive as falsely.

Another great advantage which the veterinary art enjoys, is that of not being infected with the poison of hypothesis—a poison which, being transmitted, if we may so say, from the mind of the physician in which it was nourished into the veins of the patient, has occasioned a thousand murders every day. None of the sects ardent for the establishment and triumph of a crowd of opposite opinions, to which credulous and weak humanity will always be the only victim, have yet encroached on our domain. The art is yet in its infancy: we wander as yet in darkness, where simple reason, bereft of every succour, cannot protect itself from the snares held out to blind it—where we know nothing but a vague routine, and where we carry our error so far as even sometimes to substitute for causes which we cannot discover, the foolish ideas of incantation and magic: but this sombre obscurity, so distant in appearance from the truths we seek, misleads us far less than those false lights issuing from a crowd of luminaries, which dazzle and blind the imagination more than they assist and clear it.

But how shall we preserve ourselves from these dangerous rocks of science, whence we may be precipitated in our dangerous wanderings? We can accomplish this only by conquering that self-love which seems to delight in concealing from us those

impenetrable barriers which Nature has placed between herself and us—by not being eager to draw from our first rudiments of knowledge those consequences which are too frequently contradicted by experience—by persuading ourselves that theory, however solidly established it may be on the structure and functions of parts, has nevertheless its strict boundaries—by not yielding to any authority—by not becoming the slave of any opinion—casting aside all prejudice—by admitting that only which has been faithfully and constantly seen, and rejecting all that has been affirmed but not demonstrated;—in a word, by acquiescing only in the truth of facts, and in that which necessarily follows from their admission, and by despising systems of every kind—monuments of the pride as well as the weakness of the human mind, which can impose upon and seduce us for a little while, but which sound reason, sooner or later, overturns and destroys.

Our principles should be those only which are confirmed by experience; nor should we have the temerity to extend them beyond that from which we may draw a legitimate conclusion; nor ever wander far from them, and their evidence and their certainty should only lead us to conclusions few in number, but not mutilated, or made with that spirit of prepossession always disposed to refer every thing to the idea with which the mind is filled. A single fact proves nothing: phenomena, rapidly viewed, rarely present those aspects which are most of all important for us to consider. These incomplete attempts do not furnish matter for any sure induction; and the desire of finding in this or the other medicinal substance a power which it is often far from possessing, makes us frequently attribute to it effects which are totally independent of it, and which are due to nature alone.

A *coup d'œil* quick and correct, and a clear and sound judgment, are rare gifts, but indispensable in him who wishes to distinguish himself in the art of healing. What acute discernment, and what tact must we possess, in order to decide with certainty on the existence of many diseases, their origin, character, seat, and progress; to balance the indications and symptoms against each other, and to draw the natural conclusion; to compare it in

each different species of animal, and in the midst of a crowd of varying symptoms, occasioned by the prodigious variety of structure and of temperament; to foresee the issue; to follow the disease in all its changes of character and consequences; to be guided in the choice of the arms which will best enable us to conquer the foe by the peculiar circumstances of each case, and by the particular structure and disposition of each organ that is attacked; to pause, at length, at the bounds which cannot be passed; and never to waste ourselves in futile efforts to obtain obscure and useless objects, and which we can never reasonably hope to accomplish. Is it possible that a mind less powerful and less exercised can trace out, in the concourse of an infinity of cases, the relation, the connexion, or analogy of one to another, in despite of the want of an exact identity; to watch the movements of nature; to observe their order and succession; to be assured of the ways by which she means to act; to wait her determination; to solicit her when occasion requires; to remain a tranquil spectator of the effects she is producing when those effects are salutary; to moderate and repress her action when it is too powerful and destructive; to strengthen without offending her; to render ourselves skilfully subservient to her views; to rouse that tissue which appears languishing or exhausted; to weaken or to extinguish that stimulus which would be rather pernicious than auxiliary; or, at least, to prevent the mischief which they would produce; never to usurp that which depends principally on nature, and is absolutely her province and property; and to keep rigorously within the limits of art?

It cannot be imagined that, without any previous preparation and study, it can be possible to perceive the true bearing of all these points, and to seize on indications frequently scarcely perceptible: that would be to reduce surgery to a species of intuition, a conclusion which it would be absurd to harbour for a moment; but, on the other hand, we must not believe that study alone can suffice to bestow on us the right to decide boldly, and on all occasions, whether the life of animals or of men is concerned. While a practitioner unacquainted with the principles of his art may vainly grow old in the exercise of his profession, and never

acquire the only and valuable experience which arises from numerous careful and accurate observations and comparisons, the simple theorist, without practice, cannot develop or search to the bottom, or at all determine the truth and the use of the knowledge which he thinks he has acquired: his materials are valueless to him, until he has put to the test their strength and durability; and the edifice of professional reputation and beneficial exertion can never be erected.

It is only, then, in the union and just combination of theory and practice, that we can hope to see the perfection of our art. They are, or ought to be, inseparably united; they mutually illustrate and establish one another; they increase by common consent the sum of medical knowledge; they reciprocally fix the propriety, the value, and the stability of every principle. An imagination which yields too easily to appearances, or is kindled by the fire by which it is often surrounded, and would wander and be lost amid the devious paths and threatening rocks of theoretical disquisition, is arrested by the powerful salutary influence of practice, and soon finds itself rivetted by the evidence of facts alone; and when observation alone would tend to plunge the surgeon in error, theory comes on her part to his succour, places him on his guard, and reminds him of the care with which he ought to guard against the deception. She shews him the importance of being perpetually attentive to the circumstances which essentially distinguish the various objects; discovers to him the emptiness and worthlessness of mere conjectures; teaches him to be cautious in adopting even truths themselves; and to be on his guard against the dangerous tendency to turn into general truths those which cease to be so from improper application; and to circumscribe and limit, by numerous experiments of various kinds, those which were formerly recognized.

Unhappily, we are to a great degree destitute of both these guides; but human surgery, which owes the first faint light it received to the sacrifice of animals; to the rougher and inaccurate examination of the bodies of those that were immolated for the subsistence of man, and to the curiosity, doubtless cruel but useful, of some philosophers eager to seek in the entrails of

living brutes the sources of life and of death, has opened to us, in its turn, the immense treasures it has accumulated. The knowledge, as perfect as it can well be, of the tissues and of the interior structure of the human frame, and of the use for which the different organs are formed; of the causes, for the most part concealed, of natural effects, and consequently of morbific influences; of the power and efficacy of remedies; in a word, all the invaluable riches it has acquired, and for which it is indebted to the constant and united labours of the greatest men, are for us so many precious discoveries, and which promise to our art an increase of advancement the more certain and rapid in proportion as we always rigorously submit the differences and the relations that we find to the laws of the severest reason: for in the fallacious course of analogy the most perfect truths are and have been but too often the germs of error.

This wise caution is not less essential with regard to practical facts. We ought not to admit or to apply them carelessly, or without their being confirmed by proofs the most undisputable; proofs, the admission of which will not be followed by regret. This sagacity and prudence in the consideration of facts constitutes one of the means most proper to accelerate the progress of veterinary medicine. It must nevertheless be allowed, that we labour under many disadvantages, compared with the human surgeon, in uniting and combining all that can have relation to the production, the nature, the course, and to the treatment of disease. The hereditary predispositions of a crowd of animals, of various species, exposed for sale, and soon dispersed in every direction, cannot be known to us. The particular constitution of each of them, their strength or weakness, according to which the same morbific cause producing the same ravages in the interior of the animal, may assume in his external form very different symptoms or effects, are equally concealed. We scarcely know more of their habits; the qualities of their food and water; the nature of their work or their exercise; the time of the possible suspension of their excretions; their preceding diseases; the medicines which have been employed; the effects which these medicines have produced, and whether they may not have

weakened some parts more or less essential; the symptoms by which the present malady may have been early characterised; the appearances by which it was first detected; the seat, the species, the continuance or interruption, the intensity, the mobility, the fixidity, the extent of the suffering that the animal may endure; in a word, we have no recognition of these things on the part of the proprietors of beasts, too blind themselves to enlighten us; no indications derived from the grooms, the herdsmen, the shepherds, or swineherds, men who are often most interested in deceiving us, and in concealing from our knowledge the causes, which may be traced to their brutality or negligence; so that, wandering incessantly in the midst of testimonies of the most suspicious nature, and of a multitude of equivocal indications, or abandoned to those indications only by the silence of the witnesses we interrogate, and who are sometimes as dumb as our patients themselves, it is only by a sort of divination, that we disperse the clouds that surround us, and arrive at a knowledge of the real evils with which we have to combat.

What opinion, then, ought to be formed of those men who at the first glance, and without any enquiries that might conduct to the source of the disease, decide at once on every case presented to them, and designate every disease by its name, and hasten to prescribe and administer remedies, generally opposed to the cure which they announce, and which they rashly promise to perform? The public, sooner led away by those who wish to impose upon them than supporting those whose honest wish is to serve them, may form a wrong judgment of these men; but to obtain a proper estimate of them, it will suffice to consider, that no difficulties can stop them, and that they have not one of those habitual doubts which restrain the enlightened practitioner.

Let us follow the man of real science attentively, and we shall never find him disposed either to astonish the assistants by the recital of miracles which he never performed, nor cruel towards his patients, nor inconsiderate, nor cowardly.

At first he listens with some mistrust to the reports which he receives; from these he passes to the examination of all the symptoms and exterior appearances he can collect; he afterwards

compares them together; and, convinced that all that he wants to guide him most surely to the disease is enclosed in the interior of the animal, he recalls to his recollection the examination of those who had exhibited similar symptoms, and from all he forms his opinion of the case and its treatment.

Suppose an obscure case. Are the symptoms that he observes such as are likely to mislead him? or do they conduct only to inconclusive and vague notions; or, so far from having a certain connexion with each other, do they exhibit indications that mutually contradict each other; or do they evidently belong to and announce different diseases? He attends to the latest symptoms; the clearest and the most decisive; he makes use of them to unravel others that are complicated and mysterious, and to lead him to the discovery of the evil, its seat, and its cause. If nothing strengthens his first suspicions, he adopts the last resource which remains to force nature to explain herself more plainly. He administers slight doses of certain medicines that appear to be most suitable to the case, and, by their increasing or diminishing the prevailing symptoms of the disease, he probably obtains a glimpse of the real state of the malady.

If he is consulted respecting cases attended by altogether unusual symptoms and complications of symptoms, and which bear no resemblance to any that his instructors or himself have observed, these obstacles, so far from disheartening, animate and stimulate him. He collects all his powers. He revolves in his mind a thousand times the principles in which he has been instructed, and endeavours to bring them to bear on the case in question; and when the application of them appears to be impossible, and the subject is still involved in impenetrable mystery, he limits his efforts to combat the disease in its most marked effects; and frequently, by these means, he succeeds in the most appalling circumstances, where he at first neither knew nor could discover the origin or the character of the malady.

He must adopt the same method in treating most of the epizootics, which are commonly produced by some singular and extraordinary state of the atmosphere or the weather, or by the deleterious qualities of the herbs on which the animals have fed.

When the circumstances are such, that neither experience nor profound study could teach him the proper treatment; or when, after having been a careful observer of all the means by which these fatal maladies have been brought to a cure, or caused the death of the animal, or have been converted into other diseases, or have been subjugated by nature alone, he vainly seeks to imitate the process, he is then guided by analogy as to the remedies that will be proper to reject or to use.

Always wise in the choice of the remedies that he employs, he derives none of his information from the recipes that form the riches of the ignorant. He knows that human and animal medicine would equally cease to be a science if medicines acted in the same manner on all subjects and at all times,—if their effects were not infinitely varied by circumstances which, to the superficial observer, scarcely appeared to differ;—if it was not necessary to calculate, if we may so say, their power,—to proportion it to that of the disease and of the patient;—if the most salutary things did not sometimes become hurtful for want of a right knowledge of the proper time to use them, and the manner of applying them; in a word, if the art of healing, or rather the remedial measures, were not in a manner independent of reasoning and of experience, and limited to a larger or smaller collection of mixtures, the greater part of which are well or badly compounded as chance happens to direct, and blindly distributed.

The administration of these mixtures is, in his hands, always subordinate to principles, generally true, and from which it would be dangerous to depart. He does not prescribe prudently who administers medicines capable of exciting unusual action, in cases where it is not advisable to effect any considerable alterations in the weak frame, or in diseases where patience is more beneficial than prompt action; but only when he reflects on the ordinary results of difference of climate, and orders for tissues composed of grosser fibres, and little elastic, more active remedies, while he recommends milder ones for those whose fibres are naturally more tender and more susceptible of impression.

He is never deficient in the patience which is so necessary in ascertaining the effects of remedies; and, far from imitating those

who, equally incapable of foreseeing the effects as of judging of them, have recourse, vaguely and hastily, to certain substances, and then immediately run to something different, he adheres to those of which he first, after mature consideration, made choice; and he neither varies nor multiplies them but as necessity demands, and with the circumspection which the fear of increasing the disease or oppressing the patient inspires. He does not attempt to provoke the excretions without having given nature time to prepare the matter; and then being satisfied when the passages are freely and sufficiently opened, he attentively watches that they do not operate by any circuitous route; and that, while one discharge is augmented, others are not diminished, or remain suspended. He neither urges nor retards the critical evacuations, except when nature is at fault, and claiming assistance from him. He is not ignorant, that if she acts with sovereign power in the acute maladies, she is purely passive in chronic diseases; and that art can only do mischief if it is intruded at the time when the efforts of nature are announced by a gradual return to a state of ease and health. He knows, nevertheless, that certain diseases exact, on his part, cares more assiduous than others; and he gives prompt attention to the events as they arise, and to the necessity of obviating or parrying them: he skilfully prevents the ravages which the disease might inflict on some weak or essential parts, and adroitly turns those blows on the stronger and less capital ones; he distinguishes the cases in which the debility of the patient is favourable from those in which it is proper to sustain and recruit the powers; he never suffers his views to be thwarted by a ridiculous and fatal tolerance of the non-observance of a required regimen; he regulates the abstemiousness of the diet according to the character of the disease; he condemns the animal to a rigorous abstinence from all solid food, in every case in which this food would be indigestible, and would ferment: finally, initiated in the mysteries of his art by frequenting the infirmary, he never feels in a new situation, or is at a loss at the sight of a patient: nothing escapes him of all the measures which he has been taught to pursue under the eyes of his masters; and he joins with the remembrance of every remedial maxim,

those principles of honour and honesty which were as earnestly enforced; he considers less his own interest in the employment of his talents, than the inestimable advantage of being useful.

Very far from confiding solely to his memory a multitude of facts that he may have treasured in a certain order, and of which some, sooner or later, efface the traces of others, he regularly writes down all that he observes. The treasure-store is formed of the exact history of all the diseases that he has seen and treated. He notes the species and character of each of them, their epoch, their symptoms, and the apparent disorganizations to which they have given place; the causes that concurred in producing them; their complications, their course, their duration; the means by which they were terminated; the predisposition of the object that had been afflicted; the age, and also the sex; the choice of remedies that had been employed; the reason that had determined that choice; the times when, and the forms under which they had been administered, and the precise state of the disease at the moment of their administration; the changes or revolutions for the better or the worse that may have been the consequence, and those that ought to be attributed to nature; the results of the examination of the dead body; in a word, he omits no circumstance that occurs, not even those that may appear to be trifling and minor, because even these may acquire, in their connexions and results, an unexpected importance. In consequence of this, every practitioner recording his individual knowledge, his errors, and his success, the art will insensibly rise on the immovable foundations of experience, of which a despicable and inefficient routine of practice has hitherto afforded scarcely a resemblance.

Review.

Quid sit pulchrum, quid turpe, quid utile, quid non.—Hor.

The Outlines of the Veterinary Art; or a Treatise on the Anatomy, Physiology, and Curative Treatment of the Diseases of the Horse, and subordinately of those of Neat Cattle and Sheep. Illustrated by Surgical and Anatomical Plates. By Delabere Blaine. *The Fourth Edition, revised throughout, and considerably improved and increased by the introduction of many new and important Subjects, both in the Foreign and British practices of the Art, and by the addition of some new Figures.* **1832.** (!)

We are, generally speaking, averse to these enlarged and improved editions. The author ought thoroughly to have studied his subject, and made his work complete at first; and if, in the progress of science any new discovery is made, or new light breaks on the mind of the author, it should be given to the purchasers of the first edition in the form of a cheap appendix. To be compelled to repurchase an expensive work, in order to be put in possession of the present state of any science, is a manifest and disgraceful robbery: it is a mere bookseller's job, and that with which no author who values his reputation will be concerned.

It is, however, a totally different matter with regard to the work before us. Although only six years have elapsed since the publication of the last edition, a revolution has taken place in veterinary science, or, from the establishment of veterinary societies and veterinary periodicals, the art has more progressed among us than in the whole period before from the commencement of our emancipation from barbarism. It was impossible that Mr. Blaine could have foreseen this, or have anticipated the new light that has broken in upon us from so many quarters. Therefore, as the ground which he occupied six years ago, on almost every point of pathology, and many of physiology, would be, to a greater or less extent, untenable, he did right, or he was necessarily compelled, to re-model, and, as it were, to re-write his book; and he has certainly presented us with a new book, and a very excellent one too, and even better than any of his preceding works; and we cordially recommend it to the veterinary public, and particularly to the veterinary student. The latter may not find it so useful a companion in the dissecting room; for Mr. Blaine, considering the excellent anatomical account which has been given in many numbers of this periodical, of the osseous system of the horse, and which, we trust, will be

carried through every system into which the consideration of that animal may be divided, has very courteously and properly omitted a part of his anatomy, and much condensed the rest. But as a companion in the closet, whether for physiological or pathological instruction, this work will be invaluable to the student; and especially as now, but we hope not long, it must be his only companion.

Mr. Blaine has diligently and successfully embodied in this new edition all the improvements and discoveries of his veterinary brethren; and they are neither few nor worthless. It is a faithful and interesting delineation of the present state and character of our art,—as valuable as before to the student in his closet, and more so to the lover of horses, although an unprofessional man. It is intelligible, although scientific; and interesting and popular, without being superficial.

On the points in which Mr. Blaine so much excelled, his theory of disease and his history of symptoms, he maintains all his wonted superiority. If in the treatment of disease he occasionally, but not often, brings *a little* too much of what he learned in the school of human medicine into the consideration of the maladies of quadrupeds, we can forgive him that. His account of the foot, and the diseases of the foot, stands unrivalled.

One or two trifles escaped his observation—the confounding of the symptoms of carditis with those of pneumonia, as distinct as day and night—the retention of the unchemical Ægyptiacum, the inert Balsams, the farriers' Diapente, the unnecessary torturing Euphorbium, the fine sounding, but, compared with ginger or caraways, worthless Grains of Paradise, and some others, in a materia medica truly excellent indeed, but too much extended; these trifles, and if there were many more of them, would not detract from the merit of one of the best works, and, going hand in hand with Mr. Percivall's the very best, the standard work on veterinary science.

Extracts from Journals, Foreignand Domestic.

On Glanders.

Translated from "The Elements of Veterinary Pathology," by M. Vatel, *Clinical Professor, and also of Operative and Forensic Medicine at the Royal Veterinary School of Alfort.*

This account of glanders, containing the present recognized doctrine on this dreadful disease in the school of Alfort, will probably be interesting to the English reader.

Of Nasal Phthisis in the Horse (Glanders).

This disease is the result of the growth of morbid productions, known by the names of *schirrus*, *encephaloids*, and sometimes *tubercles*, &c., in the substance of the membrane that lines the nasal cavity. This affection develops itself exceedingly slowly, and often remains hidden for a considerable time from the eyes of the observer: it is not always that, until the time of the softening of the cancerous productions, and of the development of the inflammation that determines the ulceration and the destruction of the parts primitively altered and of the tissues which cover or border on them, that its existence can be affirmed during the life of the animal.

On examining the dead body, it is observed that the mucous coat of the nasal cavities is tumefied and ulcerated. The ulcerations are often surrounded by a red arcola or circle, more or less marked; their figure and extent vary considerably. Sometimes their depth is confined to a superficial abrasion in the membrane (*erosion*), sometimes the ulcer penetrates through the whole thickness of the membrane, and even erodes the bone or cartilage underneath. They may exist at the inferior extremity, or about the middle region of the nostrils, on the median partition, or on the wings of the nose. They are often situated about the ethmoid, on the turbinated bones, or in their convolutions. A viscid, yellow, green, or brown fluid covers them. There are frequently found here and there some *schirrous* points not yet softened, and at other times *tubercles*, some of them in a soft state, and others in a concrete one. We remark very often patches of an opaque white, sunken, irregular, and, as it were, cut out, and having diverging striæ. The turbinated bones and the sinuses occasionally contain an homogenous caseous substance. The nasal phthisis is frequently concomitant with pulmonary phthisis.

A naturally weak constitution, debility from some previous affection, or bad keep, or hard work, great natural irritability, hotness at work, over fatigue, unwholesome food, or food given in too small a quantity, damp stables, or not sufficiently ventilated, cold, damp weather, want of attention to cleanliness; these are some of the predisposing causes, and often the proximate ones of inflammation, more or less frequent, acute or apparent, of the nasal membrane; and which, by their continuance give origin to morbid productions, the ulceration of which ought to be considered as the pathognomonic sign of that which is known under the name of glanders.

The diagnostic symptoms of this affection are frequently re-

duced to the tumefaction of the lymphatic sublingual ganglions, which are enlarged, hard, and adherent. Almost always they are the left ganglions of the inter-maxillary region that are swelled; occasionally, however, of the right, and still more rarely those of both sides. The animal appears to enjoy good health, which would lead us to the belief that the glandulous affection is idiopathic, did not many a circumstance make us suspect the contrary, and induce us to consider the state of the glands as consecutive on some profound and concealed alteration and disease of parts. If we direct our researches towards the nasal cavities, the eyes, the forehead, we shall usually find indications of the true state of the patient. The eye on the infected side is tearful; the eyelid tumefied and white; and the pituitary membrane pale, infiltrated, and ulcerated. Sometimes there runs from the nostril a greenish yellow fluid, more or less consistent, and occasionally bloody, and which adheres to the orifice of the nose; and lastly, that part of the forehead corresponding with the affected side is swelled and sensible to the touch. In some cases the olfactory membrane is covered by ulcers more or less numerous, without there being any affection of the glands, or any marked discharge from the nostrils; the disease is, nevertheless, of the same nature.

Sometimes the nasal membrane is tinged with red; its inflammation approaches to an acute state at the moment of the appearance of fresh ulcerations. We should think it to be simple, but very acute inflammation, with ulceration of the membrane, if we had not recourse to other circumstances, which leave no doubt on the state of the patient.

Is glanders contagious? Does it not possess the fatal property of communicating itself? Each of these opinions, so perfectly opposite, is supported by the testimony of persons equally respectable; but until well authenticated and well performed experiments have distinctly proved which of these opinions is true, it is wise to take every precaution that prudence can indicate to prevent the communication of healthy animals with those that are diseased.

The modes of cure employed in this disease, up to the present time, can boast of very little success; and perhaps we may deny that they have had any thing to do with the cure; for experience has proved that many organic lesions are cured by the efforts of nature only. In the actual state of science, it is to prevent the morbid degenerations of the pituitary membrane, which are developed at the close of chronic inflammation, and which produce, ultimately, ulceration of that membrane, that we must apply ourselves; since, when these morbid productions exist, the ma-

lady is generally reputed incurable. At this epoch there is little to be done but to employ purely palliative means; for it is rare, and indeed purely fortuitous, to see any cure of the more advanced stages of this disease; that is to say, from the formation of the morbid productions until the ulcerous destruction of the tissues.

On Nasal Polypi.—*Translated from M.* Vatel.

An English practitioner has given us in the present Number an account of the production and treatment of these tumours. It may not be uninteresting to compare with this the opinions of the French school. Edit.

On Polypi.

I. The name of polypi has been given to those tumours which are developed on the surface of mucous membranes, on account of the analogy which it was thought existed between them and certain zoophytes.

II. Polypi consist of bodies with pedicles, and adherent, by a base more or less large, to the parts from which they are derived, and usually giving out, in divers directions, branches capable of reproducing the tumour, in proportion as they are singly attacked or the whole polypus removed by surgical measures. They appear, sometimes, to derive their origin from the mucous tissue itself; sometimes in the cellular or cellular-fibrous layer that unites this tissue to the organs underneath.

III. The tumours to which the name of polypi are given, appear to be some of the effects of irritation of the mucous membrane. They may be developed on all the divisions of these membranes; but they are most frequently remarked in the nasal cavities, the sinuses, the pharynx, the vagina, the uterus, and, much less rarely, in the larynx, the windpipe, the bronchiæ, the œsophagus, the stomach, on the intestines, the bladder, the urethra, and the external auditive canal.

The means to be opposed are,—1st. Forcible detachment; 2d. Section or incision; 3d. Ligature; 4th. Cauterization.

The polypi of the nasal cavities *(souris)* shew themselves under the form of rounded bodies projecting from the nose, pyriform or pear-shaped; their size and consistence variable; sometimes soft, tearing with the greatest facility, and bleeding on the slightest touch; sometimes solid, and covered by the pituitary membrane. They are generally the result of ulcerations, wounds, fractures, perforations of the bone of the nose, turbinated bones, sinuses, &c.

These polypous productions obstruct the passage of the air, impede the breathing more or less, and often give birth to *roaring*.

Polypi of the nasal cavities are more or less prolonged in the nostrils. They are more difficult to be perceived the higher up they are situated. We may assure ourselves of the existence of a tumour of this nature in one of the nasal passages, when, on puting our hand to the orifice of the nostril, there issues little or no air, according to the size of the tumour; or, when we sound the nostril with the finger or a probe; or, lastly, by examining the nostril on a bright day.

The methods of destroying polypi in the nasal cavity vary with the texture, size, form, and position of these excrescences.

Excision with the bistoury or with scissars may be tried when the polypi are near the orifice of the nostril, and particularly when it is not large at the base. Excision ought to be followed by cauterization with the red-hot iron, by which a portion of the base of the tumour is destroyed, which could not be reached by a sharp instrument. To proceed to these operations, it is frequently necessary to cut through the false nostril. The edges of the wound may afterwards be united by a suture.

Ligature, or circular compression, exercised immediately on the pedicle of the polypi by means of a wire or a waxed string, and directed into the nasal cavity by means of a proper instrument, may be tried when the polypus is deeply situated, and particularly when its base is narrow. But, for this operation, which is very difficult to perform, and which may be followed by new polypous productions when the base is not perfectly destroyed, we may substitute the forcible detachment, especially when we have to act on vesicular and soft excrescences.

The extirpation, or forcible detachment, is performed by means of strong forceps, with deep roughnesses or teeth on their blades, and by means of which the polypus is twisted after it has been seized near the pedicle.

The hæmorrhage, if it does not cease of itself, may be stopped by plugging up the nostril. In this case, if both nostrils are affected with polypous productions, only one must be operated on at a time.

When the polypous tumour is placed in the upper part of the nostril, and cannot be reached by any of the means that we have pointed out, we must have recourse to the trephine, by which we make, above or where we suspect the existence of the morbid production, an opening sufficient to extract it.

The Function of the Iris.

It has been very generally believed that the *iris* derives its contractile power from the influence of the optic nerve, or retina; and hence it has been recommended not to operate for cataract, especially when extraction is necessary, if the iris appears motionless. The author (Larrey), however, opposes this doctrine by arguments numerous, if not convincing; and contends that the properties of this membrane depend exclusively on its own texture, and on the ciliary nerves which are sent to it from the lenticular ganglion of the great sympathetic. Cases of amaurosis, he argues, are met with, in which the iris retains its contractility—wounds inflicted on the nerves, by which its mobility is supplied, have palsied this membrane, while the faculty of sight remained unaffected; and belladonna suspends its contractility without disturbing any other function of the eye;—these and other arguments, which are illustrated by cases, but to which we can only refer, are urged by Larrey to prove that the iris is independent, in all its functions, of the optic nerve.—*Med. Chir. Rev.* July 1831.

The Function of Absorption exercised by the Capillary Veins.

The experiments of Hunter, made by exposing and isolating small portions of the intestines of living animals, filling them with different fluids, chiefly milk and a solution of indigo, and then examining the contents of the lacteals, and of the veins leading from them, may be allowed to prove two points: 1st, That absorption, at least of milk, and probably of other fluids different from chyle, took place in his trials by the lacteals; 2dly, That no absorption could be ascertained, in his trials, to have taken place by the veins.

The first of these, which is a positive observation, although opposed to the results obtained by Magendie and others, agrees with the results of many other experiments, by Lister, Haller, Blumenbach, Tiedemann and Gmelin, Lawrence and Coates, and Fœdera, in which it appeared that a certain portion of different fluids, introduced into the intestines, was taken up by the lacteals; and the possibility of their absorbing fluids different from chyle may, therefore, be held to be decided. But the second observation of Mr. Hunter, which is a negative one, is quite an insufficient ground for the general conclusion, that veins do not absorb; and the reality of venous absorption is now put

beyond all doubt, by the positive observation of many physiologists, particularly by the following.

1. The experiments of Sir E. Home and Mr. Brodie prove, that when the great lymphatic trunks are tied in warm-blooded animals, substances injected into the stomach quickly find their way into the circulation, and may be detected in the urine.

2. Experiments made by Magendie, Flandrin, Tiedemann and Gmelin, and others, prove that odoriferous substances, known by their smell, and saline substances, indicated by their tests, after being taken into the stomach, are detected in the veins on the mesentery, both larger and smaller, and in the vena portæ, much more than in the lacteals and thoracic duct.

3. Experiments made by Magendie prove that a poison introduced into an isolated portion of intestine, communicating with the rest of the body only by an artery and vein, or into the cellular texture of a similarly isolated limb, acts in the usual way, and nearly in the usual time, when the circulation is free.

4. In experiments made by Segalas, it appeared that a poison introduced into a portion of intestine between two ligatures, failed of effect as long as the artery and vein leading to that portion were tied, although the lacteals and other textures were uninjured, but took effect as soon as the circulation was set free.

5. In experiments made by Professor Mayer, it appeared that saline substances, introduced in small quantity into the bronchiæ of animals, found their way very quickly into the blood, although the thoracic duct was tied, and were detected in the left side of the heart much sooner than in the right side.

6. In experiments by Fodera, it appeared that two saline solutions, applied to the inner and outer membrane of an isolated portion of intestine in a living animal, *were united in the small veins* leading directly from that portion of intestine.

7. In experiments by Magendie, it appeared that a poison applied to an isolated vein, with all precautions to avoid contact with other textures, or even to an isolated artery, gradually transuded into the interior of the vessel, and then produced its usual effects.

8. In cases of disease where large deposits of morbid matter have taken place within a short time,—in cases of Suppuration, of Fungus Hæmatodes, and of Melanosis, the veins of the affected parts have been found loaded with the morbid matter, more generally than the absorbents.

It would appear, therefore, that the veins are concerned in the function of absorption in all the following ways:—1. They themselves absorb, chiefly by their smallest branches, at least fluid matters. 2. The contents of the lacteals and lymphatics are probably partially intermixed with those of the veins in

lymphatic glands. 3. Some of the smaller lymphatic trunks terminate in veins. 4. The largest lymphatic trunks terminate in the great veins of the neck.—*Med. Chir. Rev.* July 1831.

Spontaneous Perforation of the Right Ventricle of the Heart.

By M. Gaullet, V.S., *Bar sur Aube.*

In May 1828, I visited a horse seven years old, that for some time past had had many attacks resembling those of epilepsy. During the attack there was great stiffness of the fore extremities, and spasm and trembling of the muscles of the shoulder, the arm, and the fore arm; the eyes were drawn within the socket towards the inner angle, and nothing but the opaque cornea could be seen. The horse could not for awhile get up without the greatest difficulty, and, when it was forced to attempt to rise, it would fall and remain half an hour, with the fore limbs stiff, and irregular movements of the jaws: it would then get up and eat as usual.

The horse had been ill a month. The person to whose care it was committed had conceived that there was some affection of the chest, and had treated the animal accordingly. He had bled him twice, given demulcent drinks, and kept him on low diet. At the end of fifteen days he seemed to be perfectly well; he ate and drank, and it was thought that he might be moderately worked. The owner took him a little way at a very slow pace, when arriving at a hill, the declivity of which was rapid, he observed that the horse, in climbing it, breathed more and more quickly, until he could proceed no farther. He alighted to ease him, and endeavoured to lead him on, but that was impossible, for the animal could not climb another step, and he was compelled to return. It was with much trouble that he led him down the hill, but when he had reached the level road he travelled on more easily, and without stopping so often as he had done in the ascent and descent of the little hill.

After this trial he was permitted to rest some days, and as he fed well, and had not lost condition, the owner attempted another journey in the same direction. When arrived at the little hill, the horse again breathed with difficulty, after having proceeded a little way, and he could not get beyond the place where he had before stopped. He was led back to his stable, and an hour afterwards was attacked with a fit. He fell, and lay fifty minutes, with his fore extremities stretched out in a state of tetanic stiffness. He then rose, and began to eat.

This was the only information I could obtain. Puzzled to discover the cause of this nervous affection, I adopted an antispasmodic mode of treatment, to which I added worm medicines; having remarked in the course of my practice, that symptoms

bearing a considerable resemblance to these were produced by worms in the digestive canal. This treatment was continued during fifteen days. I had an account of the horse every two days, and I began to conceive some hope, when I was informed that he had died immediately after one of these attacks. I then proceeded without delay to Clairvaux, and instituted a post mortem examination with all possible care.

The abdominal viscera presented nothing unusual; and in the thoracic cavity the lungs and the pleuræ were healthy, but under the serous capsule of the lungs were small spots of ecchymosis, which I attributed to the convulsions under which the animal laboured before death. I then took these organs from the chest to examine the pericardium, which was distended by a great quantity of fluid. I cautiously cut into it: the serous fluid which ran from it was mixed with fibrous clots of a red colour, more or less deep. The envelope which constituted the pericardium was very thin, and distended in the form of a pouch at its lower part on the right side; and on the internal surface of the pericardic bag, and where it was thinnest, were several brown patches.

In order the more easily to examine the heart, I detached it, and drew it from the chest without wounding it. The appearance of the reflexion of the membrane by which it was covered was natural; but on regarding it attentively, I perceived about the middle of the right ventricle a little fistulous opening, one or two lines in length, with rounded edges, and through which there appeared to issue a fluid lightly coloured with blood. Round the circumference of this opening, and, half an inch wide, was a light puffiness or enlargement, of a white colour. A probe penetrated into the ventricle without resistance. To determine whether the fistula was as large on the inside as the outside, I made an incision through the right ventricle from the top to the bottom, leaving the injured wall of the ventricle on one side, and the septum on the other; when I remarked along the internal surface of the wall a longitudinal rent, extending an inch and a half from above below, penetrating into the thickest part of the wall, and diminishing in size until it arrived at the middle of the muscle, and terminating in the fistula, of which I have described the external opening.

Persuaded that this was the cause of all the symptoms observed during the life of the animal, I did not think there was occasion to open the cavities containing the centre of the nervous system.

Recueil de Méd. Vet. Mai 1831.

We confess that we do not quite share in this persuasion, and regret that the examination was not further pursued.—Edit.

Miscellanea.

Veterinary Periodicals.

We venture to lay before our readers that which Mr. Blaine, in the new edition of his Veterinary Outlines, has said of the importance of veterinary periodicals. We should not have dared to have said so much ourselves, although we subscribe to the truth of every word. If our readers also acknowledge the truth of Mr. Blaine's remarks, we trust that they will shew it in a way that we need not point out.

"We cannot but congratulate every well wisher to the art on the appearance of a periodical gathering of the buds of science as they start into view; and we venture to affirm, that, with the exception of the establishment of our national school, nothing has occurred of so much importance to the veterinary art as these journals. We only fear whether there is yet sufficient public spirit to support both; if there be, so much the better for the community; but should the market flag from being overstocked, and if no friendly means can be devised to continue to us the benefits of the talents of the whole, we yet hope that the weaker will retire handsomely, without keeping up a hostile competition, which might be fatal to both. It would be a truly national evil that we should entirely lose this periodical dissemination of the many events which occur in our practice, and the many changes which take place in our opinions. It would be lamentable that we should suffer the monthly roll-call to be silenced, which at once brings us into literary collision and professional compact; and which, like the Sunday clothes of the poor, serves 'to rub off the rust of the week.' A periodical journal of any art is an encyclopædia, which contains not the acquirements of one individual only, however talented, but the knowledge and experience of the many; and in one important particular it is even superior: the encyclopædia rests as it is; the journal marches with the art it commemorates. It is a register of facts more than of opinions; and, by its means, many a spark is fanned into a brilliant flame, and many a talented but slothful genius is by such aid stirred up to appear in a page, who would sicken at the prospect of a volume. Neither is it one of the least of the benefits likely to accrue from it, that it will prevent many of the more remote practitioners from falling into the narrow and empirical practice of pretending to secrets and infallibles; on the contrary, we shall all take on a habit of preparing to give and receive, and of looking forward to a professional *pic nic*, to which every one will be happy to contribute his mite or his meal; which, like the bread cast on the waters, will eventually return enlarged tenfold."

THE

VETERINARIAN.

VOL. IV. DECEMBER, 1831. No. 48.

ANATOMY OF THE HORSE.

[Continued from page 490.]

OF THE HEART AND PERICARDIUM.

Situation.—The heart is inclosed within the pericardium; and both together occupy the middle space of the cavity of the thorax.

PERICARDIUM.

The pericardium is a membrane formed into a conoid sac for the purpose of containing the heart. It has, exteriorly, an opaque white aspect; is dense in its consistence, and firm and tenacious in its texture. It is composed of two layers, intimately united by cellular tissue. The external one is dense and fibrous, is possessed of the chief strength of the membrane, and is attached below by several ligamentary cords to the sternum and tendinous part of the diaphragm, and above to the roots of the large bloodvessels at the base of the heart, upon which we lose sight of it altogether: the sides of it are clothed and additionally strengthened by the adhesions of the pleuræ. The internal layer is fine and cellular, exhibits inwardly a smooth, polished surface, and appears to be similar to other serous membranes in its intimate texture and organization. It not only lines the external layer, and gives a covering to the roots of the large bloodvessels, but is reflected from them upon the heart itself, to which it forms a close and complete tunic: so that the heart is absolutely out of (above) the cavity of the pericardium; in fact, it is situated precisely the same in regard to this membrane, as the human head is in a double nightcap.

The liquor pericardii is the pale yellow serous fluid found within the cavity of the pericardium, secreted therein by the exhalents of the membrane. It serves to lubricate the contiguous surfaces of the sac, and to preserve them against any ill consequences from friction.

The use of the pericardium is to confine the heart in its situ-

ation, to sustain it in its reciprocal action with the lungs, preventing any undue collision, and to serve as a protecting fence to the organ.

HEART.

Form, Situation, and Attachment.—It is of a conoid form. Its base, turned uppermost, is opposed to the bodies of the 4th, 5th, and 6th dorsal vertebræ, from which it is suspended in its situation in the middle of the cavity of the thorax, by the attachments of the venous and arterial trunks immediately connected with it. Its apex hangs loose and unattached within the pericardiac cavity, pointing downwards and backwards, and is inclined to the left side.

The weight of the heart is about six or seven pounds.

Division, external and internal.—For the convenience of description, we distinguish in the heart a *base*, a *body*, and an *apex*.

It is also said to have two *sides*, each of which contains two cavities: the two superior cavities (from having been likened to the ears of a dog) have been denominated *auricles;* the two inferior have been named *ventricles*. Their boundaries are marked externally by deep excavations, which are filled with fat; the limits of the ventricles are likewise pointed out by furrows upon the body of the heart, containing fat, continuous in substance with that which is deposited above. This fat is more abundant in old than in young horses.

The heart owes its smooth glossy aspect externally to its thin duplicature of pericardium, which is everywhere in such intimate adhesion with its surface, and so transparent, that its parietes are too plainly demonstrable through it to require that this membrane be stripped off.

The sides of this organ, commonly distinguished by the epithets *right* and *left*, would more properly be described, in allusion to the relative situation of their cavities, as *anterior* and *posterior;* for the right auricle forms the upper and *fore* part, turning its apex to the left side; and the greatest part of the left auricle is apparent *behind*, though its apex is also turned to the left side, and is inclined downward. The ventricles, being situated under their respective auricles, face consequently, like them, forwards and backwards. Though the auricles are essentially the same in structure as the ventricles, they differ from those parts in exterior appearance, in bulk, and in the substance of their parietes: they are of a pale red colour, are very uneven, when distended, upon their surfaces, and are indented along their inferior borders;

whereas the ventricles are of a dull red or deep flesh colour, are smooth and even upon their surfaces, and of themselves compose three-fourths of the organ.

The *right auricle*, generally found full of blood after death, is lined by a fine, vascular membrane, and presents internally a polished surface, the regularity of which is interrupted in places by many fleshy prominences, named the *musculi pectinati;* between which are numerous little sinuses, or *cul-de-sacs*, that, as well as the fleshy pillars themselves, vary much in size, and are most numerous and remarkable within the *appendix*, or ear-like portion of the auricle, where they form together a reticulated structure. Three venous trunks terminate in this cavity: the vena cava anterior opens into the superior and posterior part of it; the vena cava posterior opens into the inferior and posterior part; and the coronary vein just below it. The vena azygos forms a junction with the anterior cava just as the latter pierces the auricular parietes. Between the openings made by the two venæ cavæ, there is a prominence that is usually called the *tuberculum Loweri.* There is a deep *sac* or *sinus* at the entrance of the posterior cava; and between this and the mouth of the coronary vein, a crescentic *valvular flap*, which projects half way over the mouth of the latter vessel. The right auricle has a free communication with the right ventricle by an aperture of large size, called the *auriculo-ventricular opening.*

One auricle is divided from the other by a muscular partition, denominated the *septum auricularum;* in which may be seen, when the part is held to the light, an elliptical inlet of semi-transparent membrane, crossed in places by fleshy fasciculi, which takes the name of *fossa ovalis:* in some subjects there is a small aperture through it, and this is all that remains of the *foramen ovale.*

The *right ventricle* is redder and considerably thicker in substance than the right auricle: like it, it commonly contains, after death, a large coagulum of blood. It is likewise lined by a smooth, polished membrane, and has within it numerous *fleshy pillars*, which, instead of being reticulated as those are in the auricle, are disposed longitudinally. In addition to these, there are three conspicuous fleshy prominences, from their size named the *carneæ columnæ*, from which several little tendinous cords, *cordæ tendineæ*, proceed to the edges of three membranous and fibrous productions (sometimes distinguished by the name of *cortina tendinea)* that close the auriculo-ventricular opening: the apparatus altogether forms the *valvula tricuspis.* Other cords, similar to the cordæ tendineæ, but stronger than they, pass between the outer wall and the septum. The pulmonary artery emerges from

the upper and back part of this cavity; and its mouth is guarded by three *semilunar valves*, which present little pouches within the cavity of the vessel: these valves consist of doublings of the lining membrane of these parts, infolding, about the middle of their loose edges, three small granular substances, described as the *corpuscula Arantii*. Opposite to the valves, three depressions are apparent in the coats of the vessel: these are named the *sinus Valsalvæ*.

The *left auricle* is smaller than the right, and has thicker parietes. It contains, in general, but little blood, and in some subjects none. It presents nearly the same aspect internally as the right. It has not so much of the reticulated structure however—fewer *musculi pectinati;* what there are, are more strongly marked, and are principally confined to the appendix. The *pulmonary veins* terminate by four openings in the superior and posterior part of this cavity. The *auriculo-ventricular opening* is somewhat larger than that of the right side, and is rather square than round. Now, that the auricles are both laid open, the *septum auricularum*, *fossa ovalis*, and *foramen ovale*, may be distinctly viewed.

The *left ventricle*, though smaller within, is longer, and more prominent and extensive without than the right: it forms, of itself, the *apex cordis*. Its outer wall far exceeds in thickness that of any other cavity of the heart; it is thrice that of the right ventricle. Its *musculi pectinati* appear mostly upon the septum, within the apex, and under the valves. It has but *two carneæ columnæ*, but they are very bulky, and project much into the cavity. Its auriculo-ventricular opening is only furnished with *two* valvular productions; in other respects the *cortina tendinea* and *cordæ tendineæ* resemble those on the right side: this valve is called the *valvula bicuspis* vel *mitralis*. The *aorta* takes its rise from the upper and fore part of this ventricle, and, concealed at its origin by the pulmonary artery on one side and venæ cavæ on the other, makes it exit close to the spine. The mouth of the aorta is shut by three *semilunar valves*, similar in formation and disposition to those at the origin of the pulmonary artery: but the *sinus Valsalvæ* are much larger and deeper. Just above two of them are seen the mouths of the *coronary arteries*. The ventricles are divided by a thick fleshy partition, called the *septum ventriculorum*.

Organization.—Though the heart is composed mostly of fleshy fibres, a tendinous structure is demonstrable in its middle, which tendinous intertexture appears to be the common medium of attachment of its auricles, ventricles, vessels, and valves, to one another. The fleshy fibres composing the parietes of the auricles,

stronger in the left than in the right, are disposed in every direction; those that form the walls of the ventricles, for the most part, appear to run longitudinally and obliquely, and many of them in a spiral manner. These fibres are more slender than those of other muscles, and are more intimately and firmly compacted; the cellular tissue also, uniting them, is finer, denser, and less in quantity.

The heart is supplied with blood by the two coronary arteries; the first branches given off from the aorta. Its veins pour their blood into the coronary vein, by which it is returned into the right auricle. Its nerves are derived from the cardiac plexus.

[To be continued.]

Communications and Cases.

Ars veterinaria post medicinam secunda est.—VEGETIUS.

TWO CASES OF BURUSATEE.

By Mr. JOHN TOMBS, *V.S., Bengal Artillery.*

CASE I.

April 20, 1830.

A STRAWBERRY-coloured stud-bred horse, my own property, manifests the following symptoms:—Extremity of the penis slightly swollen, small ulcers on the penis, frequent erections, &c. Three weeks ago he was pricked in the off hind foot; suppuration ensued; the matter broke out at the coronet, forming a troublesome sore, and which is now degenerated into a burusatee ulcer.

Low regimen; a cathartic, and copious bleeding, he being exceedingly gross. Slaked lime and powdered charcoal to the sores twice in the day: decoctions of *heem* (a little indigenous and perennial plant) used occasionally.

May 3.—No febrile symptoms; appetite good: the penis is surprisingly reduced in size, but extensively ulcerated: the ulcers have an extraordinary red appearance, and bleed when touched. The horse is regularly exercised: he is allowed a moderate quantity of water and *gram* (corn). A saturated solution of sulphate of copper applied to the sores, and half an ounce of nitre given every day.

12*th*.—The penis is less in size, but the ulcers continue to spread, and there is a great degree of irritation in the part; the

animal is perpetually unsheathing it. Tie a piece of cloth round, to prevent the flies having access to the parts affected; give laxatives, and apply escharotics.

23*d*.—Patient evidently worse; ulceration more extensive; extremity of the penis prodigiously swollen; a copious discharge of purulent fœtid matter from the ulcers; an abundant flow of pus from the coronets. There was a brisk breeze from the east last night, which, I suppose, aggravated the disease, as it is an undoubted fact, that an easterly wind hastens the progress of this obstinate malady. He has had a spare diet, with gentle walking exercise, and laxatives given frequently. There is no embarrassed respiration or oppressed pulse. Appetite extremely good; exercise produces hæmorrhage from the penis. ℞ aloes ℥i, ginger ℥ij: mix into a ball, and give it early in the morning; the application of the sulphate of copper to the sores to be discontinued, and lime used as a substitute.

25*th*.—A copious discharge of adhesive matter from the sores. The horse cannot retract the end of the penis into the sheath, on account of its being so enormously swollen; the swelling is become perfectly schirrous. Fomentations.

27*th*.—Anticipating that no beneficial effects will result from the remedies that I had hitherto employed, I at length considered it necessary to remove the diseased part. The horse was cast; my farrier-major withdrew the penis from the sheath; and I then fixed a tourniquet beyond the diseased part. My assistant grasped the penis firmly, while I dissected away ten ounces of schirrous and indurated flesh, laying the prepuce and penis completely bare. I then applied the actual cautery, to suppress the bleeding. When the tourniquet was removed, a profuse hæmorrhage followed from an artery, which, by the application of a ligature, was instantaneously stopped. I released the horse, and exhibited a cathartic.

30*th*.—The prepuce is slightly swollen; pulse a little increased in frequency. He has been living on *bheesa* (bran), and has had gentle exercise. The penis is fomented with heem.

June 7*th*.—Patient appears to be going on tolerably well: the discharge is greatly diminished. Unslaked lime and charcoal are applied twice a-day, and a bandage kept on the penis. The horse had gentle exercise, a spare diet, and a moderate quantity of water.

Up to the twentieth of this month he was gradually improving; but subsequently he got progressively worse, owing to the gross negligence of the *syec* (groom), by discontinuing the medicines, and suffering the flies to irritate the sore. This produced a new inflammation, swelling and discharge, and a most disgusting ap-

pearance. Use laxatives, and apply fomentations and escharotics.

29*th.*—This morning I was again under the painful necessity of dissecting a large quantity of burusatee and schirrous flesh off the sheath. The horse was cast on his back. I forced the penis up the sheath as far as possible; and included all the integuments and a large mass of diseased flesh in the tourniquet; but not a particle of the penis, which was retained in its situation by the tourniquet. I then removed the diseased parts with a scalpel, and suppressed hæmorrhage with the actual cautery and resin. I bled the horse after performing the operation, and in the evening gave him a laxative. The diseased flesh was exceedingly tough, abundantly supplied with bloodvessels, and of a livid colour.

July 6*th.*—The horse is tucked up, but his appetite is good; the penis has been fomented; a solution of sulphate of copper applied, which unquestionably increases the sores. There is a copious discharge of pus. Lime and calcined alum applied to the sores.

10*th.*—The discharge is greatly diminished. Ægyptiacum used to the sores; mādar (a native shrub) exhibited daily. I ride the horse occasionally.

14*th.*—Patient much better: applications as before.

19*th.*—I rode him out hunting yesterday, and when riding through a jungle he scratched his hock, thigh, and fore legs. The ordinary mode of treatment was adopted, and to my utter astonishment, this morning, the 23d, I perceive that the scratches are become genuine burusatee sores. I presume the obnoxious flies inoculated the abraded parts with pus from the penis. Sulphate of copper given internally; calcined alum applied to the sores, &c.

Aug. 1*st.*—A profuse discharge of muco-purulent matter from the sores. Sulphate of iron and copper administered; alum and flour used to the sores.

2*d.*—This morning the horse cannot void his urine, on account of the calibre of the sheath being diminished to half an inch in circumference. This likewise utterly precluded the possibility of his unsheathing the penis. I, with four "blackies," cast the horse, enlarged the orifice of the sheath, and removed a large mass of superfluous flesh, secured the bloodvessels, and liberated the animal. Immediately after the operation, the horse voided a large quantity of urine with the greatest facility. I had the parts fomented, &c.

10*th.*—Slight amendment. Apply acid. muriat. and alum to the sores.

25*th*.—There is a little discharge and swelling: the parts seem disposed to become schirrous again. Continue the remedies.

Sept. 1*st*.—The sheath is enormously swollen. An emollient poultice applied daily: sulphate of copper and iron exhibited as before.

18*th*.—Swelling reduced; discharge less; horse improving in condition. Burnt alum and muriatic acid used to the sores.

28*th*.—The ulcers on the extremities quite healed.

Oct. 8*th*.—The animal appears perfectly recovered: I now work him regularly.

CASE II.

July 7th, 1830.—A brown horse, aged, the property of an officer in the foot artillery, has had an enlarged penis for the last twelvemonths. A few days ago a multitude of small sores made their appearance on the penis, and a discharge of pus has taken place from them; the animal cannot draw his penis into the sheath, it hangs pendulous between his thighs. I told the proprietor that it was indispensably necessary to amputate it, to which he assented. I bled and physicked the horse, and then performed the operation of amputation, as follows: viz., cast the horse, and rolled him on his back; I pulled the penis out of the sheath as far as possible, and my assistant held it out firmly; I then fixed the torniquet on the penis, above the diseased part, and with a scalpel excised half the penis. The torniquet was now removed, the pudendal arteries being previously secured: I had no occasion to use the actual cautery. The operation lasted but a few minutes. Inflammation and swelling ensued, but it was soon subdued by fomentations of heem. When the inflammation subsided, the healing process went on remarkably quick: on the 12th of August he was discharged from the hospital stable fit for duty.

I thought of communicating a few cases of Kumree; but on perusing THE VETERINARIAN for 1830, page 253, I perceive that there is an excellent description of it. Therefore Messrs. Editors, if you, or any of your numerous correspondents, can suggest a more curative treatment for burusatee than the *one* that I have hitherto adopted, I should feel highly obliged by having it communicated through the medium of THE VETERINARIAN: likewise the most efficacious remedy for Kumree.

I remain, gentlemen,

Your obedient servant,

J. TOMBS, *V.S.*, *H. E. I. C.*

P. S. The treatment that I generally pursued for kumree was venesection, laxatives, blisters, and setons to the loins, and, eventually, castration: but it invariably proved unsuccessful.

CASES OF DIARRHŒA IN CATTLE.

By Mr. W. A. Cartwright, *Whitchurch.*

CASE I.

I examined a yearling bull calf on the 28th May, 1831, that died of diarrhœa. It was a cross-bred one, and rather delicate, and had been ill some months with the disease. The third stomach was quite filled with masticated grass, and was perfectly sound. The plaits upon the fourth stomach were about an inch thick. (at least three of them were), and underneath the secreting coat there was contained a quantity of serum and lymph, but chiefly of the former, and which had the appearance of jelly. The plaits were very tender, and the least force would penetrate them, and suffer the serum to escape. Underneath the other part of the stomach there was similar œdema, but not to so great an extent. There was scarcely any food in it, and that which it contained was very watery. The small intestines were a little softened, and the secretion in them was greater than natural: the cæcum had two or three small abscesses just under the inner coat, but which had not burst, and many places of it were marked with black streaks. The whole of the abdominal cavity was very white, and infiltrated with serum, more or less, in every part; but to a casual observer it would be thought to be sound, on account of its whiteness; and it contained but little more serum than usual. The bladder was full of water, and sound: the heart was inflamed about its base, and coated with lymph about the coronary vessels: the pericardium contained a pint of serum, and of a natural colour.

CASE II.

20th of June, 1831, I examined a yearling heifer calf that had had diarrhœa for several months. The fourth stomach was in a similar state to the above one, and contained a little fine sand, which it had been accustomed to pick up in the field. The third stomach was filled with soft masticated grass, and sound. The small intestines were filled with very liquid fæces, and they seemed sound: the hepatic ducts were thickened, and contained numerous flukes: the liver generally was of a clayey colour: the gall-bladder was very large, and contained about half a pint of gall, of a natural colour but rather thin. The whole of the body, generally, was infiltrated with serum, and of a white colour. The kidneys were sound.

CASE III.

On 6th August, 1831, Mr. Moss, of Heath Lane, called on me

for a purging drink for a cow that he thought was staked, although she was considered a shooter, as she had been purging, more or less, ever since last spring. She was about seven years old, of a white colour, and crossed a little from the old Shropshire into one of a lighter breed; in very good condition, and skin quite slack upon her. At night she died; and, on examination, the paunch was filled with food, but it was not of a succulent kind, but seemed of a hayey nature, and merely moistened with water. The third stomach was completely distended with food, and in a hard dry state. The fourth stomach: the plaits on its internal surface were much filled with serum, and which would gravitate when held in different positions: that part of it towards the duodenum, and part of that intestine, were very red and inflamed. The fourth stomach contained merely a little secretion and some sand, and had a dropsical appearance. The small intestines did not seem to be diseased, but rather small and contracted. On the villous coat of the large intestines, throughout them, were a great many reddish spots, and in other places there were whole patches of the same; and on wiping this red secretion off, the coat was found to be abraded or ulcerated, and the interstices between these spots were thickened. The liver was sound. The gall-bladder contained about a pint of gall, of its usual appearance and consistency.

CASE IV.

On 21st September, 1831, I examined a yearling calf that died of this complaint. It was what we call of a hardy sort, being of a brown colour, and of the old Shropshire breed. The third stomach was filled, and approaching to staking: the plaits on the fourth stomach were not at all dropsical or otherwise diseased: the large ducts of the liver were filled with flukes, thickened, and in some places slightly ossified. On the secreting surfaces of the ducts there were patches of a black sandy secretion, that had the feel of small spiculi of bone newly formed. The gall-bladder contained from a pint to three half pints of gall, of a thin dark brown colour. The intestines were not diseased or thickened in the least.

FRACTURE OF THE FACE OF A HORSE.

By the same.

On the 5th May, 1831, I saw a cart-horse of Mr. Darlington's, of the Twemlows, that had been kicked by another horse, under

the eye on the near side. The bone that was fractured was the superior maxillary, where it unites with the ossa unguis et malæ. The depressed part was forced down upon the sinuses, and was about two inches long and one inch broad, and could not be drawn up. I therefore used the trephine, and removed the whole that was injured, being many other small pieces. I dressed it with turpentine liniment, and applied adhesive plaisters over the wound, and towards the latter period of cure injected a solution of superacetate of lead; and in the course of a month it was all healed up, and perfectly well, and not the least symptom of glanders has yet shewed itself.

FRACTURE OF THE THIGH OF A BULL.

By the same.

On the 29th April, 1831, a yearling bull fractured his near thigh obliquely, about three parts of the way down it. I strapped it up with splints and bandages, and put a charge about the part, and kept him quiet, without slinging him; and in five weeks the bone was perfectly united, and he was turned out: indeed, in a month he put his leg down and walked on it, but with a degree of caution and care. He fed well all the time, and got up himself.

ON VETERINARY REFORM.

By Mr. A. Harris, *V.S., Bromyard, Herefordshire.*

In a short letter which you published more than eighteen months since, I made some observations on the subject of reformation in our profession, and have ever since purposed writing another on the same; to do which I have many times began, but some repugnant feelings have hitherto prevented the completion. Not that I have ever for a moment doubted the need or propriety of such proceedings, for as I formerly thought any effort for the advancement of the profession creditable to a member, I have since thought it discreditable in those who do not, in some way, "lend a hand" in the common cause; for I have, with painful feelings, observed in what way the heads of the profession have taken your (can it be doubted?) honest endeavours, and read of "enemies," and "wishing to drive them from their posts;" and although my contributions could not, I trust, lower the institution in the eyes of the public, or its officers in those of the students, I would not willingly be considered as one, or as intend-

ing to do the other. With these sentiments I could almost abandon the subject altogether, or leave the Veterinary College out of the question; but feeling that many and great causes are still operating against us, and that some of them have their origin within its walls, I shall make a few observations, not that I think them new or more powerful arguments than have been used, or that my writing "to stones will make them movable," (or which is just as likely, *the governors*), but because they have shut the door of the council-room in our faces, and in every way trampled upon the best, and, indeed, the only judges of existing circumstances; and because I would not have a single number of your work published without telling them that the subject is not forgotten, and that sooner or later *reform* will pervade every public institution.

The Veterinary College, as at first constituted, was, perhaps, as perfect as it then could be, and reflects great credit on its founders; not so, there having been no increase of means for the acquirement and propagation of knowledge, by its present governors (the funds having been ample); but as to the fact, that there is a falling off in some respects, I will not trust myself to speak. But supposing that it still is, as it was originally, intended for the advancement of science and the good of the public, and that it is not become, as some would have us believe, a private veterinary surgeon manufactory, and which, by the by, some words of their own tend to confirm; and that the governors have any sense of their duty,—can they be aware, that there is no means by which the profession, and sometimes pupils, can become acquainted with the increased knowledge of disease and improvements in practice, which must be taking place; or that in the lapse of nearly forty years there has no regular nosology or materia medica emanated from the institution? and from where, I ask, can we expect them, if its professors have not been able, *with their advantages*, to perform the task? Perhaps they have heard that "the diseases of horses are few and easily understood, and that we may carry all our medicines in our pockets," but against which I must record my protest. Perhaps it will be attributed to want of intellect when I state, that after more than ten years' close attention to practice, and some previous knowledge, I often meet with something new in the shape or nature of disease, and as often want something new in the way of medicine. With regard to the by no means favourable specimen of pharmacy exhibited of late*, they "*the governors*," cannot be expected to

* Your correspondent in criticising the Pharmacopœia makes a strange blunder when he speaks of acids found in the intestines liberating caustic alkali, &c. &c.

have much knowledge; and the sale of medicines at the College, as to price, accords well with the compositions; but very few veterinary surgeons, I imagine, use them; for my part, no one has a greater contempt for what is here called a *capital resait;* but some forms are necessary for medicines in common use, in which the most efficacious should be compounded in a way that their properties shall not be changed by chemical agency, and, as far as possible, in a way that they will not spoil by keeping.

While on the subject of medicine, I must be permitted to say, that I fear we know but little, farther than that aloes will purge, &c. &c.; and that unless those who have opportunities for experiments will make use of them, and record the results, how are we to improve?

Of the individual qualifications of the college officers, it would ill become me to speak; but the discordance of their opinions and practice, year after year, without producing any change, tells me that—at least that they possess more than a common share of forbearance. But there should be an addition of talent and experience derived from country practice, in which very different diseases are met with to those in large towns. What, for instance, is known, or I should perhaps say taught, on the subject of parturition, and the diseases to which both dam and young are liable? I mention the first, because I still entertain a lively sense of what I felt when called in to some of my first cases. In short, every thing which is necessary for a general practitioner to know should be taught at the College: and as to the attending the lectures in town—independent of the charity-like appearance, the time occupied in passing to and fro may be, I think, better employed in the hospital. To some it occasions bodily fatigue, and which naturally damps an ardour necessary for the successful prosecution of study, and probably diverts the attention of others. If the college funds, with the present fee, are not sufficient, I have no doubt thirty guineas would be as readily paid. Of the internal government of the College, or the propriety of admitting practitioners as subscribers, I have nothing to say; but I think if such alterations as I have mentioned were made, and a proper committee appointed to examine the students, there would be little occasion to regulate the period of their pupilage.

Having stated thus much as regards the College, I shall proceed to another cause of the slow growth of veterinary knowledge, and which was first brought to my mind by reading accounts of discussions and communications in your work, which did not shew those feelings which should exist among us. But in taking upon me to animadvert on the conduct of my professional brethren, I would not be suspected of malevolence, or any im-

proper feelings ; and I assure you that I have long hoped to see the subject taken up by some one more competent, and of greater influence, than myself. Need I say, that there appears to have been a want of unanimity from the first, and that teachers, authors, and practitioners, in general, have been too much swayed by self interest. The appearance of your work, and that of your late contemporary, have been the means of bringing out many exceptions, and to them and you I take this opportunity of acknowledging myself indebted for much information.

I begin by laying down a maxim which I have had by rote so long that I do not exactly know if it is my own, or where I had it from ; but whoever framed it, no one will attempt its contradiction, namely, that the respectability of the profession will depend not only upon the conduct of its members towards the public, but also towards each other; and that its advancement on the score of science, on a friendly intercourse and communication of knowledge, derived from experience, and which cannot become general unless our conduct is strictly honourable, or until we can state a difference of opinion without acrimonious language.

My paper being filled, I must pull up; but you shall hear from me again shortly.

HYSTERITIS AFTER ABORTION.

By Mr. W. C. Dickins, *V.S., Kimbolton.*

Feb. 12*th*, 1831.—I was called to attend an aged mare that had received a violent blow on the face, in consequence of running against a post, the excessive irritation attending which had caused abortion. She appeared greatly exhausted, and constantly straining behind; her pulse high, but very weak. The bowels being already relaxed, from living on tares, I administered powdered myrrh ½ oz. tinct. opii ʒj, treacle ʒiv, boiling water a pint.

I saw her again on the morning of the 13th, when she seemed much relieved, and ate a bran mash with a few scalded oats in it with avidity. At seven o'clock in the evening I was sent again for, the owner considering the mare as dying. On my arrival, I found the ears and legs quite cold, with a quick fluttering pulse; the animal throwing herself down, and rolling in the greatest agony, straining behind much as last night. On inquiry, I could not learn that she had been seen to stale. I immediately removed the hardened fæces from the rectum, and found the bladder but little distended ; but thinking the neck of the bladder might be affected by contiguity, I introduced the catheter, and drew off about three pints, which seemed to afford great relief. I repeated the drink, and ordered

the posterior portion of the abdomen to be well fomented; a bran mash with oats as before.

14*th*.—Evidently better; pulse slower, stronger, and extremities become warm; but still straining behind. Continue the drink and mashes.

15*th*.—Still mending; all irritability having left the organs of generation; and pulse nearly at the natural standard. Ordered her to be put on her regular diet, but to be kept short of water for a few days, being fearful that, by distention of the bladder, the irritability of the uterus might again be renewed: from this time she gradually recovered, and has been at work ever since.

P. S.—Probably some may say, Why did I not bleed? My answer must be, that from the age, bad condition, and exhausted state in which I found my patient, I am confident she would not have borne the loss of even a small quantity of blood.

CASE OF TETANUS IN A FOAL A FORTNIGHT OLD,

FROM AN INTERNAL SEPARATION OF THE UMBILICAL ARTERIES.

By the same.

May 20, 1831.—I was requested to attend a filly, the property of Mr. Quick, of this town, which they had observed the day before to evince a difficulty when sucking. On my arrival, I found the muscles of the face much contracted, likewise those of the posterior extremities, and the membrana nictitans protruding to a great extent, which led me to warn the owner that tetanus was fast approaching; but being the produce of a most excellent dam, as well as a great favourite, he wished to have every thing done which medical aid could suggest. Upon inquiry, I could not learn that it had received any injury; and was naturally led to an examination of the cord, which appeared as usual, with the exception of being broken off shorter than it generally is, or ought to be; and I learned that it had bled a good deal during the first day. The bowels being much constipated, I administered ol. lini ℥iv, and a clyster with oil in it: the bowels not operating, in the evening the clyster was repeated with the oil. Ten o'clock at night, the poor thing made several ineffectual efforts to suck: the bowels now operating freely, I ordered a strong sinapism to the spine.

21*st*.—Morning, the bowels still operating, but the jaws quite set; I injected about a pint of the mother's milk into the mouth by means of a curved syringe, but which was swallowed with difficulty.

Six o'clock evening, the tetanic symptoms still increasing, and continued so till the 22d, about eight o'clock, when it died.

Post-mortem examination.—I found the umbilical arteries full of pus, and almost approaching to gangrene, quite up to their origin viz., the aorta: the veins did not appear affected, nor yet the urachus; all other organs quite healthy, with the exception of a slight distention of the vessels of the brain and medulla spinalis.

ON THE HOOSE IN CATTLE.

By the same.

[Our friend, and the valued pupil of one of us, has done us the honour, and one that we court, of asking our advice respecting the treatment of this sadly fatal disease. We will first lay his account of the symptoms before our professional brethren, requesting some one of more extensive practice to take up the subject; and if we are disappointed in this, we will, in our next number, say all that we know about it, but that neither much, nor, we fear, satisfactory.—Ed.]

Symptoms.—Generally preceded by an almost constant husky cough. The respiration much quickened and laborious; pulse quick but small; ears, nose, and legs, cold; hair staring; the bowels generally constipated, if not, *very much the converse*, in which state the beast will continue for some days without any alteration of symptoms, and then die.

Treatment which I have adopted with most success.—When the bowels are in a state of constipation, give Epsom salts ℥ii, powdered ginger ½ drachm, and repeated in ℥i doses every six hours, until purging is produced: if they can bear it, bleed from ℥viii to ℔i. Introduce setons into the throat and dewlap; and some have blistered, but with no manifest advantage. I have then given them a ball daily, composed of nitrate potassa ʒfs., emet. tart. gr. v., digitalis, gr. v., which, in some, I have perceived to have great influence in diminishing the febrile action, but the disease sometimes, after you would think the beasts are mending, returns again, and takes them off in a short time.

Post-mortem appearances.—The principal seats of the disease appear to be the larynx, trachea, and bronchiæ, but the latter more especially; and where the subject has been a strong one, and the disease existed long, the substance of the lung has been affected. The trachea is almost filled with a slimy mucous

and the membrane lining it in a high state of discoloration, almost approaching to a black; the bronchial tubes are full of lymph, the abdominal viscera quite healthy, but in a few instances the kidneys have borne slight marks of disease.

MR. YOUATT'S VETERINARY LECTURES,

DELIVERED AT THE UNIVERSITY OF LONDON.

The Nasal Bones in Cattle, Sheep, Swine, and Dogs—Fracture of the Nasal Bones.

From the great development of the frontal bones in *cattle*, in order to form a base for the horn sufficiently strong, all the bones of the face, and the superior ones of the cranium, are considerably diminished in size, and more or less displaced. The nasal bones in the ox are connected, as in the horse, with each other, and with the frontals, the lachrymals, and the superior and anterior maxillaries; but the mode of connexion is different, and the form of the bones is very dissimilar. Comparing the faces of the two animals together, the nasals are scarcely one-third so large as in the horse. Instead of their expanse above, connected with the frontal superiorly and posteriorly, and with the lachrymal laterally and inferiorly, and reaching as high as, or a little above the tubercle of the lachrymal bone at the inner canthus of the eye, they are pushed down below the orbit by the protrusion of the frontal on either side between them and the lachrymals, and their superior and expanded curve receiving between them a process of the frontals, is changed for an insignificant process contained between the lower curvatures of the frontals: therefore the strangely intricate mortised connexion between the frontals and the nasals is not found in cattle. The smaller development of this portion of the nasal bones does not require it; and they are not so much in the way of danger, for a blow aimed at the head of the ox by the biped or the quadruped would usually fall higher.

At the centre of the connexion of the upper point of the nasals with the frontals the union is strong: a prolongation of the nasal is received between the laminæ of the frontal on either side, but immediately below this the nasal is little more than in juxta-position with the other bones, or, at most, there is only a cartilaginous attachment; indeed there are some places, and particularly the triangular space between the frontals and the superior maxillaries, where there can be scarcely said to be even a cartilaginous attachment. Strength is not required, and therefore is not given.

The nasal bone of the ox, contrary to that of the horse, enlarges

as it proceeds downward, and has its greatest width where it lies between the lachrymal and superior maxillary bones. It then comes in contact with the process of the anterior maxillary, where it begins, in a very slight degree, to become narrow. Leaving this bone, it proceeds forward about half the length of the corresponding portion of the nasal in the horse, very little diminishing in width, and terminates in two apices or points; so that each bone being bifurcated, and the inner apex of each uniting, the nasal bones end in three points, springing from an extended surface.

This portion of the nasal bone is short, because the anterior maxillary being in the ox devoid of teeth, is comparatively small; it is, however, bifurcated and wide, for the greater attachment of muscle and cartilage. The muzzle of the ox is very different from that of the horse. It is broad, thick, and strong, for it has to compress and to hold the grass firmly until it is partly cut and partly torn by the pressure of the incisors of the lower jaw on the pad, which occupies the place of the teeth in the upper one.

This bone presents a more regular convexity without than the nasal bone of the horse does, and its concavity is likewise different. We have not the large, almost uniform arch of the internal surface of the nasal bone of the horse, but a distinct gutter or channel running along the upper portion of the arch; and the lower portion of the internal surface, although presenting a flat appearance, in point of fact forming part of the larger arch of the whole cavity. This upper and smaller channel corresponds with the upper meatus in the nasal cavity in the horse—the interposed space between the turbinated and nasal bones; and as I shall have to shew you that this is the portion of the cavity most connected with the sense of smell, while the others are mere air-passages, or for the discharge of fluids, we can account for the greater size of this meatus in the ox, who needs and has a more acute sense of smell than the horse, on account of his feeding more in the pastures, and not being so perfectly domesticated.

As the nasal bones are not so firmly united to the surrounding ones as in the horse, and if a violent blow should fall on them they are more likely to be displaced or fractured, the interposition of this enlarged upper meatus will remove the turbinated bones beneath more out of the reach of danger.

In the *sheep* we recognize another form and connexion of the nasal bones—more developed posteriorly than those of the ox, but far less so than in the horse—enclosed above, like the ox, by a crescentic border of the frontals, instead of a process of the frontals being received between them—separated from all contact with the lachrymals by a sharp process of the frontal insinuating itself between the nasal and lachrymal bones—pushed down into

the face by the development of the frontals, but not so far as in the ox—a more complex denticulated union with the frontals than in the ox, because a greater extent of border is opposed, and they are subject to greater danger from the brutality of those who ought to be their protectors whether biped or quadruped—lying in juxta-position with a longer line of the superior border of the superior maxillary, but having a more cartilaginous union with, or not coming into contact at all with the anterior maxillary; therefore, in a manner, unconnected with two bones, the lachrymal and the anterior maxillary, to which the nasals are united by suture in the horse and the ox. The nasal bones are not prolonged further below the posterior process of the anterior maxillary than in the ox, because here, too, that bone does not contain any teeth, and is of comparatively little bulk; and the bones terminate in two sharp points, as in the horse, and, uniting together, form, as in him, one central and sharp projection. This and the borders of the anterior maxillary give attachment to muscles sufficiently powerful to enable the upper lip of the sheep to compress and assist in breaking off the herbage; or that which would be wanting in power is supplied by a peculiar quickness and jerkiness of motion in the manner in which this animal grazes. The broad muzzle of the ox would be a deformity in the sheep; and the sheep in a state of nature is possessed of considerable activity and speed, and requires thinner and more flexible nostrils, to expand and accommodate themselves to the increased and more laborious respiration. The nasal bones in the sheep are more arched and rounded than in the horse, with, in many of the breeds, the prominency on the superior part, and which, in the horse, has been designated by the name of a Roman nose. There is also the same concavity of the nasal bones on their internal surface, forming the same enlarged superior meatus as in the ox, and for the same purpose.

In the *swine* the nasal bones are forced farther down into the face than in the horse, ox, or sheep; but they are comparatively larger than in either of them, and present also points of difference suited to the situation and destiny of the animal. They are attached to the frontals in a slightly curved direction across the face, and the suture is fully as complicated as, and considerably stronger than the same suture in the horse. It is both squamous and denticulated. They are, as in the sheep, cut off from immediate contact with the lachrymal bones, by the interposition of a projection of the frontals on each side. The suture between them and the superior maxillary is mortised; the anterior maxillary sends up a deep and broad process more than half the length of the nasals, and the suture between is peculiarly strong; the bony

nasal opening is not more than one-sixth part so large as in the sheep, and the apices of the bones form one point, sharp yet rapidly widening, and which is brought forward to the anterior extremity of the maxillary. The suture between the nasals themselves is so intricate, that before the animal is two years old it is perfectly obliterated at the upper part, and the nasal cavity seems to be covered by one nasal bone only.

The slightest comparison between the face of this animal and that of either of the others will prove that strength was the object here intended to be effected, and strength towards the inferior part of the bone. In fact, the snout of the hog is his *spade;* and if he can get into the kitchen or flower garden, he will use it most effectually, to the great annoyance of the owner. The long and deep furrows which he ploughs in the new-sown field are not viewed with pleasure by the farmer. The hog was not intended to live merely on that which he finds on the surface, but often to dig deep for worms and roots. Have none of you, in your boyish days, followed a hog along the side of an old and somewhat damp hedge, and chased him away when he stopped and began to turn up the earth with his snout? You were sure to be rewarded by the discovery of the sweet-tasted earth-nut—delicious to the school-boy, at least. In some parts of Italy, swine are employed in hunting for truffles, which grow some inches deep in the ground, and make a beautiful pickle and sauce, well known to the epicure. One of them is driven into a field, and there suffered to pursue his own course. Wherever he stops and begins to root with his nose, truffles are always found.

To make his instrument more perfect, an additional bone is added to the nasal. It is short and trifacial, and placed immediately before the apices or points of the nasals, and connected with them, and with the borders of the anterior maxillary, by muscles, and also by strong cartilage and ligament. This makes the point of the snout flexible, and it becomes a better instrument than the unyielding spade of the gardener. He turns up the soft soil with wonderful ease, and searches in every direction after his living and dead food, with a sagacity, and dexterity, and perseverance which nothing can elude.

If you have seen a herd of swine, on the approach of a storm, running wildly about with straw in their mouths, uttering the most lamentable cries, twisting their snouts in every direction, and making the most ridiculous grimaces, you will have proof enough of the flexibility of this prominent portion of the face.

To counteract the propensity and power to dig, the operation of ringing is performed by the village farrier and blacksmith;

> "And pigs he rung, and bells he hung,
> And horses shod and cured."

The ring is passed through what appears to be a prolongation of the septum, between the supplemental or *snout*-bone, and the proper nasal. The animal cannot then get any purchase, to use his snout with effect, or the pain which he suffers by the ring pressing upon the part soon tames him. But the ring is apt to break, or in process of time it wears out, and must be replaced. It is a painful operation, and, from the cries of the animal, a perfect nuisance to the neighbourhood. A better way is, when the pig is young, to cut through the cartilaginous and ligamentous prolongations by which the supplemental bone is united to the proper nasals. The divided edges of the cartilage will never unite again, and the snout will always be powerless.

The nasal bones of the hog are flatter than any that I have yet shewn you. They can thus be so firmly united with the maxillaries as to almost appear like one bone, and to have the power and strength of one.

The nasal bones of the hog contain within them, but considerably shallower, the separate channel that has been described in the ox and sheep as constituting the enlarged superior meatus. The hog, with all his filthy habits, is possessed of very acute smell, and, at times, of very delicate taste too. In the course of a few days I shall have to give you some illustrations of the former. Of the delicacy even of *his* palate, the peach-orchards of North America afford sufficient proof; for he will not touch the fruit that has lain only a few hours on the ground, but will continue to watch whole hours together for a fresh windfall.

The nasal bones of the *dog* are very small. This is the case with all carnivorous animals. Instead of constituting the roof and part of the outer wall of the nasal cavity, as in the animals that have passed in review before us, the nasal bones form sometimes only a *portion* of the roof. The superior maxillaries here swell into importance, and constitute the whole of the outer wall, and sometimes a part of the roof too. The jaws are the weapons of offence and defence here, and as much space as possible is devoted to the insertion of those muscles which shall enable the animal to seize and to hold his prey. One of the most powerful of these muscles, the masseter, rises from the superior maxillary bone, and spreads over its whole extent, and therefore that bone is developed while the nasal is compressed into a small space. The substitution of a portion of cartilage instead of bone at the posterior part of the orbital ring, in order to give more room for the play of the coracoid process of the posterior maxillary, round which the temporal muscle is wrapped, is a contrivance of the same nature. The scent of the dog is not sacrificed or impaired by the diminution of the nasals, for the

cavity enlarges considerably upwards, and is occupied chiefly by the æthmoid bone, through which the olfactory nerve first passing, and on which the greater portion of nervous pulp being spread, seems to have most to do with the sense of smell.

The nasal bones in the dog are in shape the reverse of any that we have yet considered. They commence, indeed, as high up in the face as those of the horse, their superior extremity being opposite to the lachrymal tubercle; but they commence in an apex or point varying in sharpness in different breeds, and in some almost as sharp as any that we have seen at the lower extremity of the nose in other quadrupeds. These points forming, together, one sharp projection, are received between lengthened processes of the frontal bone on either side. In some breeds, these processes extend nearly one-third of the length of the nasals. The superior maxillary takes the situation of the nasal; it pushes the lachrymal bone out of its place, and, indeed, almost annihilates it; and it reaches the frontal, and expands upon it, and forms with it the same squamous denticulated suture which we have seen in the nasal in all the rest. The action of the muscle, for the development of which all this sacrifice is made, is exceedingly powerful. The strength of the masseter in the dog, and in all beasts of prey, is almost incredible. A lion will run at a great pace with a tolerable-sized steer in his mouth. Then the sutures between these bones must possess corresponding strength. They do so; and so intimate is the union between the bones, that in many old dogs the sutures between the superior maxillary and frontal bones is nearly, and that between the nasal and frontal and superior maxillary, quite effaced. The whole is one solid mass of bone.

The nasals, as they proceed down the face, curve their inner edges inward and downward, making a channel of greater or less depth along the median line of the face, and as the channel on the inside is plainly to be traced, and is large, compared with the diminutive size of the bone, there is a considerable bony ridge dipping into the cavity, and forming a line of attachment for the septum.

As the nasal bones proceed downward, they become a little wider; they unite with a long process of the anterior maxillary, as in the swine, for the purpose of strength, and then terminate in a very curious way. They have their apices or points on the outer and not the inner edge of the bone, and these apices or points are so contrived, that, lying upon and losing themselves, as it were, on the processes of the anterior maxillary, they complete, superiorly and posteriorly, that elliptical bony opening into the nose which was commenced by the anterior maxillary, anteriorly and inferiorly. The nasal cavity of the dog, therefore,

and of all carnivorous animals, terminates by a somewhat circular opening, running more or less into the form of an ellipse. This bony aperture varies in size in different dogs, and, as we should expect from what we have seen of adaptation of structure to the situation and wants of the auimal, is largest in those on whom we most depend for speed and stoutness.

Of birds, and they will sometimes be our patients, I will only say, that the bone of the upper mandible represents the superior and anterior maxillaries, the palatine and nasal bones and in some cases, as in the specimen before us (the head of a turkey), sutures may be observed pursuing their course almost as regularly as those which divide the corresponding bones in the mammalia. The openings into the nose are found, however, not at the extremity of this bone, but in different situations, according to the species, on the superior surface of the mandible.

Fracture of the nasal bones of the horse will sometimes occur from falling, or a kick from their companions, or the brutality of their attendant. It is generally accompanied by laceration of the pituitary membrane, and hæmorrhage. The hæmorrhage may usually be arrested by the application of cold water. In spontaneous hæmorrhage this does not often succeed; but here we know precisely the spot whence the bleeding proceeds, and at which the cold is to be applied.

The fractured portion of bone is usually depressed, and, the calibre of the little open space which the æthmoid and turbinated bones leave in the nostril being diminished, difficulty of respiration occurs. I had once a case of fracture of both nasals. I was enabled to elevate the depressed parts; but there was so much inflammation and swelling that the animal was threatened with suffocation, and the operation of tracheotomy was resorted to.

You will consider the situation of the fracture. If it be on the crown of the arch, and but a little removed from the suture between the nasals, it is over the direction of the superior meatus, and, by means of an *elevator*, or curved rod of steel, cautiously introduced into the meatus, the depressed portions may be raised. The tuberculous termination, or appendix of the superior turbinated bone, may be seen if the nostrils are lifted, and a little above it, the entrance of the meatus may be reached, and which may be traced through its whole extent by pursuing a direction close to the roof of the nose, parallel with the septum, and a quarter of an inch from it. If the depressed portions cannot be thus raised, the trephine must be applied a little above or below the fracture, and the elevator introduced through the aperture. If the fracture be in any other part of the bone, it will be im-

possible to reach it with the elevator, for, with the exception of a very small space, about half way down the nasal bone, and on the suture between the nasal and the superior maxillary, and which you may see in this preparation, the turbinated bones will be in the way. The trephine must then be resorted to in the first instance. It is necessary that the wound, if there be any, should be covered : a compress should be kept on it, not fastened round the jaws with a bandage, for the patient must eat, but attached to the ring of a snaffle below, and to some of the head-gear, as may be most convenient, above.

If the fractured parts protrude outwardly, which, however, will rarely occur, they must be replaced, if possible, in their natural ituation, or dissected out, or cut off. Perhaps it may be neces-s ssary to use considerable force in detaching the loosened bone.

A writer in one of the French periodicals relates a case in which a horse was violently kicked, and there was a contused wound, with depression of the bone. He applied the trephine, and extracted fifteen splinters. Finding pus in the maxillary sinus, he opened that, and the case terminated well.

Here is a specimen of dreadful fracture of the nasal, frontal, and lachrymal bones, with considerable caries. The history of the case I do not know.

I will suppose that you have replaced the fractured edges of the bone; re-union has taken place; the external wound has healed ; and, except a slight discharge from the nostril, occasionally purulent, the animal appears to be well. Do not be too sanguine. I shall have to speak to you of the structure of the nasal membrane, so vascular and so sensible, and of the continual sources of irritation to which it is exposed, and you will then deem it possible, at least, that inflammation and ulceration may continue, and at length degenerate into that peculiar form which seems to be, as it were, the natural termination of every injury of the membrane of the nose, and every chronic disease of the frame ;—the horse may eventually become glandered : therefore do not be too sanguine. Let your prognosis, even in the most favourable case, be exceedingly guarded.

If, however, you escape glanders, there may be some troublesome sequelæ of the case. Some small portion of bone may remain depressed, or the membrane may be thickened by inffammation. The nasal passage will then be obstructed, and a difficulty of breathing will ensue in rapid action, very much resembling roaring.

Ozena, or the establishment of a stinking ulcer, which will baffle all your attempts to get rid of the fœtor, may follow.

Enlargement and suppuration of the submaxillary glands, which sympathize with every affection of the nasal canal, may be produced by the chronic irritability that will occasionally be left.

If the fracture has taken place over the lachrymal duct, there probably will be permanent obstruction of that canal, and fistula lachrymalis will succeed. You will therefore undertake the case with reluctance, and be well guarded in the opinion you give of the result.

There is a case of a horse having received a kick on the upper part of the nose. There was, probably, fracture, but the horse was not examined with sufficient accuracy to ascertain its existence. The animal suffered considerably for awhile, and then seemed to get well. Six months afterwards, there was evident difficulty of breathing after unusual exertion. The right nostril appeared to be partially obstructed, and, on being examined against the sun, a tumour was discovered high up. Six months more were suffered to pass away. The difficulty of breathing was considerably increased; the right nostril was completely obstructed, and, about two inches from the orifice, an elongated bony tumour was perceived growing over the suture of the nasal and superior maxillary.

The horse was thrown, and fixed so that the nostril should be dependent, and the blood should not flow into the back of the mouth, which might have suffocated him. The false nostril was slit up as far as the union of the nasal with the anterior maxillary; the lips of the wound were held aside, and, by means of a chisel and mallet, the tumour was detached: it weighed ten ounces. The lips of the wound were then brought together; nothing else was done, and, in six weeks, the horse was well.

There is another singular account of a horse coming within the reach of the sail of a windmill that was working very quickly. The blow fell on the side of the face, and fairly took away the whole of the nasals, leaving the nasal cavity completely exposed. The wound in a manner healed, and he was able to go to work again, and has continued to work for two or three years in this state, the part being merely covered by a piece of leather; and not only is there no glanders, but his health does not appear to be in the least impaired. I regard these cases, however, as exceptions to a general rule, and should always fear the result, if much injury had been inflicted on the Schneiderian membrane.

A CASE OF RED WATER, ATTENDED WITH VOMITING.

By Mr. R. Thornton, *V.S., Auchterarder.*

In the month of June, I was called to attend a young cow which had been siezed with the red water (murill, in our place); and, as it was stated that she was very ill, I went as quickly as possible. On arriving, I found the animal in a very desperate state, the eyes appearing wild and staring, the pulse extremely quick, the beast staggering about, and scarcely able to stand. On inquiring into the particulars, I was informed that she appeared but slightly affected a few hours before, but, according to the prevailing custom, they had given her about two pounds of salts, and kept her without water for four hours afterwards; and that, after giving her water to drink, she exhibited the symptoms above described. Suspecting the salts had acted as poison on the stomach, causing inflammation, I bled her to the extent of three quarts, and gave as much more water as she would drink. I then administered a pint of linseed oil, with a view of sheathing the stomach and intestines from the irritation of the salts, and, at the same time, clearing out their contents, but which produced an effect somewhat different from what I expected, as, in a few minutes, I observed the animal making efforts to vomit, which were successful, and, an empty bucket being in the byre, the regurgitated matter was collected, which consisted of a large quantity of masticated grass, with the oil, salts, and water, to the extent of a common pailful: the animal immediately appeared considerably relieved, and next day it seemed quite well.

AN ESSAY ON SPAYING EWES,

By Mr. John Fulton;

BEING HIS INAUGURAL ESSAY AT HIS EXAMINATION FOR HIS DIPLOMA, AT MR. DICK'S VETERINARY SCHOOL AT EDINBURGH.

All animals are instinctively inclined to propagate their species; and as soon as they arrive at the suitable age, and the proper season has approached, this propensity is strongly manifested. Under the influence of this natural impulse, they range at large over the fields, and frequently trespass on the neighbouring pastures. In many places this is attended with great trouble

and loss to the owner, as they invariably become lean, and disturb all the rest of the flock. The operation of spaying has been found to remedy this evil, and to prove ultimately advantageous to the rearer of cattle.

I shall confine my remarks to that branch of the science which relates to the spaying of ewes, as it is a department of surgery which belongs to a few districts only where sheep are bred, and which, therefore, is not so well and generally understood.

Spaying has the same effect on the female of any species as castration has on the male. It not only prevents the possibility of progeny, but also eradicates the appetite for sexual connexion.

On the evening previously to the operation it is proper that the ewes be taken from the grass and penned up in some place of confinement, in order that their stomachs may be emptied a little. This treatment is not absolutely necessary, but it is highly commendable, as the operation is uniformly attended with less pain to the subject, and the operator is enabled to perform it with more facility; for during the operation the animal is kept lying on its side, and strains itself violently in its attempts to escape.

The operation is to be performed as follows:—The ewe is to be laid on her side. Two men, besides the operator, are necessary; one to hold the head and fore legs, and the other to keep the hinder legs fast. Some make the incision into the abdomen below, but I am confident that the side is a much more suitable place. It is a matter of no consequence whether the right or left side be taken. If the operator mean to use the right hand, he should take the left side, *et vice versâ*. In both ways, however, he will arrive at the same result, and produce the same effect.

In some ewes it happens that the uterus is *stiff*, and will not admit of being brought all over to one side; and in others, which have had lambs, it is sometimes so tender, that to pull it all over to one side might cause laceration. In all such cases the safest way is to extract one of the ovaria from one side and the other from the other side, when the wound of the former is closed up. Generally, however, an incision into one side is sufficient, and it is always to be preferred, when it possibly can be done, without making two wounds. Out of two thousand five hundred or upwards of female animals, upon which I have performed the operation, not more than six or eight of them required to be cut on both sides. Having placed the ewe on her side, the operator is to stand at her back, and, with a pair of scissors, to shear the wool off the spot where the incision is to be made, and fold it back in such a manner that it may be stitched over the place when the

wound is sewed up. The hinder legs are then to be brought to full stretch, and the skin held firm by the left hand to prevent it from yielding to the scalpel, while with the right hand he is to make the incision directly below the ilium ; and by cutting through the integuments, fascia transversalis, fibres of the external oblique, tendon of the internal oblique, and transversalis muscles of the abdomen, he exposes the peritoneum. Then, with a tenaculum, he is to lift up the peritoneum, and cut a hole into it large enough to admit the fore finger of the right hand ; or, by putting the finger against this membrane and giving it a gentle turn round, he will succeed in making an opening sufficiently large, and with perfect safety to the animal. The finger now being in the cavity or sac of the abdomen, he is to put it straight down till he feel a doubling of the peritoneum, called the ligament of the uterus, which attach the horns of it to the sides of the pelvis; which, when felt by the finger, leads infallibly to the glandular-like body called the ovaria of the left side, which lies forward on the belly of the psoas parvus muscle, situated in the lumbar region at the end of the fallopian tubes, which are sent from the horns of the uterus.

With the tip of the finger the ovarium is to be brought out of the orifice, and held between two fingers till the uterus be turned round gradually by the thumbs and fore fingers so far as to get hold of the other ovarium. The ovaria being both exposed, cut off the one last found, and allow the uterus to fall back to its place, and then cut off the first one. Next order the hinder legs to be brought forward, and with a needle and a white thread stitch the edges of the wound together, leaving a small opening at the lower end of the wound, to allow the matter that may form to escape. The wool may then be fastened down over the wound, and the ewe let loose.

The whole operation generally occupies a space of forty or forty-five seconds. It will be necessary to confine the ewes from the cold or rain, for twenty-four hours after the operation, in order to prevent irritation of the part, till it adheres. Even then they should be driven gently to pasture, and the greatest caution should be observed: the field should be level, and the grass so abundant, that their labour in gathering it may be easy. Young grasses are preferable to old, being sweeter and of a laxative nature. If a wet stormy night is approaching, they ought to be housed, or gently driven to the driest and most sheltered corner of the field. They are rendered extremely susceptible of any impression by the operation, and therefore great care is necessary.

With regard to the seasons of the year, the spring and autumn

are the most advantageous for this operation. The spring is decidedly preferable to autumn, the ewes being lower in condition, and not so liable to inflammation: in this season, also, an operation is more easily performed, which is always a circumstance worthy of notice; for whenever the operator accomplishes his purpose with facility, there is always a commensurate degree of alleviation to the subject.

In spring, the month of April is to be preferred, as the weather begins to be mild, and fresh grasses to spring up; both of which tend to give the operation a successful issue. In autumn, the best month is September, the weather being moderate, and all danger of the fly, which produces maggot on them, avoided.

Maggots, in many places, are very troublesome and destructive; sheep are very liable to them from about the middle of May to the middle of August. Grasses, after a crop of hay, oats, barley, &c., are also in fine order for them in September, and especially for those brought off coarse, hilly pasture. Grasses of this kind have always a laxative and sometimes a purgative effect.

The same season is very proper for operating upon lambs, but they ought to be weaned previously, and put among young grass. I have seen them thrive very rapidly under this treatment.

Ewes may be spayed at any age, but the best age is from lambs up to a year old.

The advantages of spaying and castrating sheep are so obvious, that it may seem superfluous to point them out. To the grazier it is a great source of profit; for were these operations not performed, the sheep, instead of feeding contentedly on their pastures, and growing fat for the market, would go on multiplying their species to infinity, holding the sage economical opinions of Mr. Malthus in the most profound contempt. It is not enough that the males and females are separated. This, no doubt, prevents the possibility of progeny, but it never insures the owner of their speedily becoming fit for the butcher. It is universally observed, that, after spaying and castrating, sheep are much more easily fattened, and their flesh is more juicy, and of a firmer and finer texture; and that the fleece is proportionably improved. The value of one sheep is thus greatly increased, and consequently, where great flocks are kept fattening for the market, the profits must be very considerable. Among the advantages enumerated, I ought not to omit, that they fatten in a shorter period upon a barer pasture, and consequently upon much less food than those which are allowed to remain in their natural state. Against these advantages, only two disadvantages can be placed, viz., the expense of the operation, and the deaths which it may cause. These, however, are not more than a parti-

cle of dust in the balance, when set in opposition to the advantages; for the expense is very little, and, when proper care is taken of the animals after the operation, death is of rare occurrence.

The aim of the stock farmer is to improve the breed of his sheep; but among numerous flocks there are every year a great number of small lambs which are unfit for this purpose: in such cases, spaying and castration are generally resorted to, and then they graze without possibility of propagating their dwarfish race among the flock; they are afterwards sold fat, and, instead of sustaining loss, the owner may draw profit from them. In such stocks, a number of the breeding ewes are every year getting too old, and in all such cases they should be spayed, as they will then soon become fat, and may be sold to advantage. In the same state, and for the same reason, tups should be castrated.

The animals subjected most commonly to the operation of spaying, are queys, ewes, pigs, and bitches; queys and pigs are most generally done in Dumfrieshire, Galloway, Ayrshire, and Argyleshire: in some of them all the queys and pigs, except those kept for breeding, are spayed.

On bitches, the operation is difficult, but they generally stand it well: it is not of so much advantage to the owner of them as to the owner of most other animals, as they uniformly become fat, lazy, and inclined to sleep.

The advantages which the owner derives from the spaying of queys and pigs are, perhaps, still greater than those derived from the spaying of ewes. But as I have already endeavoured to enumerate some of the most prominent of these advantages, all further remarks would be superfluous.

UNSUCCESSFUL AND SUCCESSFUL CASES OF TRACHEOTOMY.

By Mr. Charles Clark, *Stamford Street, London.*

CASE I.

In the month of April last, I was called to see a black mare at Wanstead, about twelve miles from town. She had been the property of a butcher, and was a remarkably fast trotter, of the Norfolk breed; and though aged, she had every appearance of soundness and health, excepting that for some years she had been a confirmed roarer. Shortly before I saw her, she had been attacked with inflammation of the lungs, which left such a difficulty of breathing, that she could not at that time walk more than a few steps without danger of suffocation, and the

noise she made in respiration could be heard above a hundred yards. She was lively and hearty; and being induced, from the circumstances, to suspect some disease or obstruction of the larynx, I agreed to take charge of the case, and had her slowly led to town. The journey occupied nearly a whole day, and caused so much distress, that I thought it necessary to take a gallon of blood immediately she got in; and, during the night, her breathing became so difficult, that I was hastily obliged to perform the operation of bronchotomy, which gave instant relief, and confirmed my opinion of the complaint. A tin canula, which I afterwards improved by the addition of a proper flap, was inserted, and kept in the orifice of the trachea by stitches in the skin of the neck, which I then and since have found preferable to any other plan of retaining it. After a few days, by the use of depletives and mild treatment, she began to breathe again through her nostrils, and the canula was laid aside; but being injudiciously exercised and trotted fast, by the owner, during my absence, all the bad symptoms returned, and it became necessary to reinsert the canula with fresh sutures, which occasioned a thickening and irritation around the part: thus the case stood for above a month after this relapse without amendment, but her appetite was good and spirits cheerful; she became quite in good condition, and took walking exercise. At length the skin around the orifice in the windpipe was so destroyed by the sutures, that I was forced to employ other means to keep in the canula, which by accident falling out in the stable one afternoon, caused suffocation within an hour after she had been seen alive and as usual.

On examination there appeared a general ossification of the thyroid, cricoid, and aretynoid cartilages, so as to form a complete unyielding fixture of the glottis; the lining membrane also being so inflamed and thickened, that not even a quill could be thrust through the passage.

Observations.—I consider it probable that this disease had been brought on by the improper use of the bearing rein confining the parts during violent action. It had certainly been slowly induced, and increased at the time of her illness, before she came into my hands. I have preserved the strictured parts carefully, and their appearance satisfactorily proves that it was an incurable local affection.

CASE II.

A bay mare, five years old, had been laid by in a loose box in my own stables for several days, on account of a swelled leg and appearance of the grease, having previously been in hard work. About two weeks ago she was very suddenly attacked

in the night with an alarming difficulty of breathing, and generally excited state of the system; so much so that, when called to the case, I doubted whether it was violent inflammation of the lungs themselves, or only an impediment in the air passages. The symptoms, however, were urgent; she was wheezing loudly, the pulse quick and hurried, the extremities cold, and a most profuse discharge of frothy mucus from the mouth. To relieve the lungs was the direct indication, and I accordingly took two quarts of blood; but still the breathing remained difficult, and in less than an hour I was awakened with news that the mare was dying. Before I reached the stable she had fallen down, and was suffering the extremity of suffocation.

As no time was to be lost, I divided two rings of the trachea with my knife, when a volume of air burst forth, and immediate relief ensued; the tin canula was then put in requisition, and retained by stitches as in the former case. Convinced that there existed an impediment in the glottis, and determined to lose no chance of preventing the formation of a permanent stricture, I directly blistered her sides, throat, and under the jaw, extensively; that is, as soon as she rallied from the point of death as it were, at which she lay, and from the excitement of which nature did not revive for some hours. Gradually the warmth of the extremities returned, and was kept up by friction and bandages; the violent action of the lungs slowly subsided, youth and a strong constitution being greatly in her favour.

The next day I found her suffering from inflammation of the bladder and kidneys, the effect of blistering so large a surface; this I relieved by diluents and injections into the rectum and vagina. Her appetite was good, but for several days she respired only through the canula. There never was any apparent or palpable swelling under the jaw, or of the adjacent glands; yet after some days an opening was observed in the skin under the onset of the head, and a considerable discharge of pus took place, but none at any time appeared by the nostrils. Soon after this she began to breathe naturally: the canula has now been discontinued above a week; the orifice in the trachea is nearly healed: she is gay, and bears trotting exercise, and has every sign of complete recovery.

The proximate cause of the impediment I cannot discover, nor account for its very sudden appearance, and decidedly local character; but the case proves that tracheotomy may be useful in some instances, when no other resource is available.

THE VETERINARIAN, DECEMBER 1, 1831.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

We adopt the following letter as our leading article. It relates to that which we have long pondered in our minds, but we had always felt considerable difficulty in tracing the precise path which we were to pursue. We have endeavoured to occupy high ground, and to identify ourselves with the respectability and improvement of our profession, and we are somewhat jealous of the character of our periodical. It must not be degraded to a mere racing calendar. However, the natural history, the noble qualities, and the extraordinary performances of our domesticated quadrupeds, will always be an interesting as well as useful subject, and will afford many excellent "illustrations of veterinary science." We will endeavour occasionally to blend a little more of the *dulce* with the *utile;* but we must be forgiven, if, even while we are attempting to amuse, we do not quite forget the end and purpose of THE VETERINARIAN.—EDIT.

To the Editors of "The Veterinarian."

Gentlemen,

To such a pitch of perfection has the commercial and professional constitution of society risen, that it would puzzle the most worldly wise amongst us to strike out any new pursuit, either in the way of handicraft, trade, or science, which would not interfere or clash with, or, worse still, detract from, some one or more of the callings already in existence. In some few instances these commercial and professional offsets have turned out not only to no advantage, but inconvenient and even hurtful: in others, and indeed in the majority of cases, they have proved very beneficial to society. In former times, the callings of the barber and surgeon were associated and practised by the same individual person. No one could dispute the eminent advantages that have resulted from their disjunction. But this has been succeeded by

the separation of *medical* from *surgical* PRACTICE; a division, there is reason to apprehend, of hurt instead of benefit to society. I say their *practice* has become separate; for human ingenuity has not yet succeeded in distinguishing any boundary lines: I might say, any difference whatever in the *science* of the one and the other.

Although *farriery* (in the vulgar sense of the phrase) was practised for years before "the veterinary art" sprang up, yet has not the *science* (which is modern) obtained a place in professional society without interfering with, if not intrenching upon, some others' pursuits and callings. It has stripped the poor farrier of all his supposed instinctive sagacity—his proudest attribute; it has uncloaked the squires' groom and coachman, and exposed their audacious ignorance; it has picked holes in the coat of the stud and training groom, and likewise in the jacket of the jockey; it has made the professed horseman and sportsman look askance ere they offered an opinion; and it has prevented medical men from meddling with that which they (though they think they do) really know nothing about. All this has tended more or less to raise up enemies to the veterinary profession; among which the most implacable always have been, and still continue to be, grooms and coachmen, and gentlemen in those shapes. No art, in its way, has proved, and must and will prove, of greater benefit and advantage to society in general than the veterinary. It is true we ourselves cannot feel, or will estimate, what our horse feels: but we may feel *for* him as we would feel for a human being, at least in degree; and as far as *interest* is concerned, perhaps that degree may be apt to range *higher* in one case than the other. A *humane* master will not consider the pecuniary worth of his suffering horse in calling in aid for his relief; and a master who is alone guided by that, will be apt to tamper with even human malady.

My object in setting out (and I must beg pardon for some little digression from it) was to shew from what arts and sciences the veterinary has been derived; and thence to draw a theoretical deduction that a recurrence to those arts and sciences could not but prove at all times of very great service to veterinary practice. Of

the science of medicine and surgery we have fully availed ourselves: into the art and handicraft of the farrier and shoeing-smith, we have as fully entered; nay, we have pried into the secrets of the groom, though not sufficiently. But from the horseman and the racer—and in particular from the latter—we have much, very much, as yet to learn.

It is this department of our science (if I may so express myself) to which I am desirous, gentlemen, to direct your attention. It is a fertile field, and one that has, as far as *pure racing* is concerned, been very highly cultivated. But, racing gentry are not persons in quest of science, but of means *for making money:* and though in this search they rake up much useful knowledge, yet do they leave it all where they found it, save and except that portion which they can any wise turn to their *pecuniary* account.

By directing some part of your Journal (already so undeniably useful) to this, which I shall, by way of distinction, call "The Sporting Department," you would not only be augmenting the public utility of it, but you would be greatly adding to the *pleasure* of the reader of it: and let me tell you, that is a point which *he* would not think lightly of, however trifling a consideration it may seem to you "men of science." An author of a single treatise may, if he likes, rigidly confine himself to dry scientific detail: but a public journalist—even though he be a *professional* one—will best study his own advantage, and the pleasure and satisfaction of his reader, by affording some *amusement* along with his instruction. In making use of this phrase "amusement," let me be understood not to mean any trifling or fooleries; but to allude to accounts and digressions which, at the same time that they entertain the reader, serve as illustrations of science, and thus afford him the *utile* along with the *dulce*.

Now, gentlemen, in order to give you a specimen of this proposed *addendum* of mine to your already very commendable Journal, I will suppose myself, at the present moment, in the place of one about to write, for the ensuing month, the article composing

THE SPORTING DEPARTMENT.

The month just past will be long held celebrated in the "Annals of Sporting," for being the date of one of the most brilliant

achievements on record. We moderns have various modes of travelling through space at much speedier rate than our forefathers used to do; but, unless the aeronaut can outdo Mr. Osbaldeston, I believe that both the sailer and the steamer must concede to him the palm of victory. Upon the Manchester railroad it is *possible*, I understand, to perform at the rate of 30 miles an hour; but, then, this cannot be done *for a continuance*. On the other hand, our hero, Mr. Osbaldeston, has travelled 200 miles within the surprisingly brief space of time of seven hours nineteen minutes—which is at the average rate of more than 26 miles per hour.

To one who takes the trouble to analyse this performance, it must evidently appear to have depended upon three principal concurrences, independently of accidents; viz. upon the rider himself; upon his horses; and upon the general arrangement of the whole affair.

To the rider it is our desire to attribute much—every credit: at the same time, we must be permitted to say, that, in our opinion, the brunt of the race did not rest upon his shoulders. We should say that much of the success depended upon judicious preparation and arrangement; upon guarding against and providing for accidents and contingencies; but that most of all depended upon the gameness and condition of the horses. As far as the rider was concerned (without wishing to detract one iota of due credit from Mr. Osbaldeston), we should say that a man would return from a long and hard day's hunting, after having ridden his tired horse 20 or 30 miles home, more fatigued and exhausted than he would have done had he ridden Mr. O.'s match. It was not the riding, —nor was it altogether the pace, that was to beat Mr. O., but it was the liability of the occurrence of accident—the occurrence of something that had not been provided for—that told very much against the success of the performance. At the same time, *take it altogether*, it was truly a brilliant feat. It is an exploit of which it may be said, that, taking any one part of the transaction singly, there is nothing that need excite our surprise; yet, looking at the *tout ensemble*, it really quite astonishes us. It is a performance of which Britain may be proud; since she stands alone among all other countries in the world, in possessing the

means of accomplishing it. It has proved a hit (and a lucky hit too !) for Mr. O.'s backers ; and, if justice were done, for himself too.

This match must not be hastily dismissed from our minds, as only interesting as a piece of sport for the present moment: it must and will be set down on record as a *datum* whereby future calculations will be made, and a guide for the direction of future matches. It appears that Mr. Gulley's noted horse, Tranby, ran the race four times, and every time did the distance in *less* than nine minutes. It also appears that one hour twenty-three minutes were occupied in " mounting, dismounting, and refreshing."

Supposing, however, that horses could be found to do the four-mile heats (taking one with the other) in eight minutes, and supposing that ten minutes was deemed sufficient time for the rider's " refreshing," and that half a minute was only taken up between any heat in dismounting and mounting, in this case the match might be performed in some considerable time less. In fact, it would stand thus :—

	Hours.	*Minutes.*
Fifty four-mile heats at eight minutes per heat	6	4
Fifty mountings and dismountings at half a minute each	0	25
Refreshing	0	10
	6	39

which, deducted from eight hours forty-two minutes, leaves a difference of two hours three minutes less time than the match was performed in by Mr. Osbaldeston. I do not mean to assert that this is either practicable or possible *at present;* but I do mean to offer a venture that the match *may* be done in yet a *less* space of time than eight hours forty-two minutes: and I am bold to affirm this from Mr. O.'s own shewing.

And after this daring assertion allow me, Gentlemen, to subscribe myself,

INNOVATOR.

Sporting Department.

MR. OSBALDESTON'S MATCH AGAINST TIME,

AT NEWMARKET, FOR ONE THOUSAND GUINEAS, ON SATURDAY, NOV. 5, 1831.

SINCE the match between Sir Joshua and Filho da Puta, or the no less celebrated one for the Claret, when Moses won it, nothing has occurred to attract so large an assemblage to Newmarket. Parties arrived from all parts of the kingdom; and on Friday night not a bed could be obtained at any price. The influx was not confined to Newmarket; Cambridge and every other place, within ten or fifteen miles of the heath, profited by the occasion. The match was made, previous to the July meeting, between Colonel Charrité and Mr. Osbaldeston, for 1,000 guineas aside; the latter undertaking to ride two hundred miles in ten hours in the ensuing Houghton meeting, the number of horses being unlimited. By some oversight it was originally fixed to come off on the Monday after the meeting, but, on the objection that this would be a violation of the articles, the time was altered for Saturday. Up to the last week the backers of time were numerous, the contingencies being all in their favour. In the first place, Mr. Osbaldeston's age (forty-seven) was considered inimical to his doing two hundred miles at a racing pace, while the mere fatigue of mounting and dismounting, it was thought, would be sufficient to give him what is quaintly termed a "tie-up." Again they urged that a horse might fall lame, or turn restive, be awkward to mount or pull up; the weather, too, might be unfavourable; in fact, that putting aside all these objections, it was a task requiring nerve and stamina that could scarcely be expected from any man, however young and vigorous; on the other hand, nothing could possibly happen to prejudice old "Time." This party, therefore, appeared to have looked upon the undertaking as almost equal to one of the "seven labours." That some of the contingencies speculated upon did occur, will be seen below. It will also be perceived that they did not operate much in favour of the "time" party. Several of the most experienced sporting gentlemen backed Mr. Osbaldeston, from a knowledge of his almost iron constitution, vigorous habits, and general capability for a hard day's work; and it must be admitted, that rowing in the summer, and hunting throughout the winter in all weather, constitute recommendations of no ordinary nature: in addition to this, "the Squire" had taken extraordinary pains to qualify himself for his Herculean task, especially in the last

week or ten days, frequently riding forty, fifty, and sixty miles a day, in the teeth of a wind that "cut like a razor." The ground was measured over the Round Course, beginning and ending at the Duke's Stand. The saddles were covered with lambskin, and marked with the names of the horses to be ridden, and the order in which they were to be brought to the post. Refreshments (consisting of weak brandy and water, warm jelly, cold partridge, &c.) and changes of clothing were provided; the latter, however, were not required, Mr. Osbaldeston preferring to continue in his wet clothes to losing time in shifting them. The umpires were, Mr. Bowater for Colonel Charrité, and Mr. Thelluson for Mr. Osbaldeston. The distance was divided into heats of 4 miles each; some of the horses, it will be seen, having to do the distance twice, thrice, and four times.

The morning was extremely unfavourable, commencing with a drizzling rain, which subsequently increased to a drenching shower, accompanied by a high and piercingly cold wind; but this did not damp the spirits of the rider, and at precisely twelve minutes after seven he was mounted and started, carrying a whip, and wearing spurs; the latter he dispensed with occasionally. The following are the names of the horses, and the respective times in which they performed their four miles:—

	min.	s.		min.	s.
1. Emma	9	0	4. Coroner	9	15
2. Paradox	9	20	5. Obberton	9	40
3. Liberty	9	25	6. Don Juan	9	0

The first twenty-four miles, including stoppages for mounting and dismounting, were performed in two minutes under the hour.

7. Morgan Rattler	9	13	9. Cannon-ball	9	23
8. Paradox, second time	9	6	10. Clasher	9	25

Clasher broke down, and came in at a trot; but the forty miles were performed in nineteen minutes and a half within the two hours.

11. Ultemar	9	10	12. Fairy	9	5

The forty-eight miles were performed in two hours one minute and five seconds, including mounting and dismounting; the ground getting heavy, Mr. Osbaldeston still in high spirits, althqugh wet to the skin. Up to this time he had taken no refreshment beyond a little gum arabic, which he held in his mouth.

13. Coroner, second time	8	40	15. Emma, second time	9	21
14. Liberty, second time	9	30			

This completed the sixty miles in twenty-seven minutes less than the three hours. In the last run with Emma, Mr. Osbal-

deston went the wrong side of the post, but immediately turned and went back to the point of error. Mr. O. now took a little weak brandy and water, and again mounted.

16. Don Juan, second time .. 9 8 | 18. Cannon-ball, second time.. 9 45
17. Obberton, second time .. 8 20 |

Seventy miles were done one minute under the three hours, and the seventy-two miles four minutes beyond the three hours.

19. Ultemar, second time.... 9 0 | 20. Tranby 8 10

The rain subsided, but the weather still cold and cheerless.

The eighty miles were done in three hours and twenty-five minutes and a half, including stoppages.

21. Fairy ..... 8 8 | 23. Colt, by Tramp 8 58
22. Morgan Rattler, sec. time 9 28 | 24. Dolly 8 58

Any odds on the performance of the match.

25. Acorn..... 9 2

The HUNDRED MILES were now completed in *four hours nineteen minutes and forty seconds.* A proposition was made that Mr. Osbaldeston should alight and change his dress, but this he declined, and said he would go a few more rounds. He appeared rather stiff, but still in good spirits.

26. A Horse, by Smolensko 8 52

Mr. Osbaldeston took a crust of bread and a mouthful of cold brandy and water, stopping rather more than two minutes.

27. Tranby, second time .... 8 0 | 29. Guildford 8 25
28. Skirmisher..... 9 25 |

The rain came down in torrents during the last round; but again cleared off, and was once more favourable.

30. Dolly, second time..... 8 45

He had now completed one hundred and twenty miles in five hours eleven minutes and a half, and determined on taking some refreshment. He immediately proceeded up into the Duke's Stand, where he recognised some female friends, and immediately sat down to a lunch of cold partridge. He said he was as "hungry as a hunter;" and after taking a glass of sherry, and stopping six minutes and twenty seconds, again mounted without changing his dress in any particular.

His next horse, the thirty-first change, was Ikey Solomons. Ikey, soon after starting, became restive, made a slip, and then suddenly roaching his back, Mr. Osbaldeston was thrown over his head, and fell full length on the ground. Fortunately, he retained the reins, and sustained no serious injury, although he lay for

a minute stunned by the fall. A countryman who was near the spot picked him up, assisted him to remount, and he pursued his course, performing the four miles in twelve minutes. On alighting he was evidently flurried and distressed; but he shook it off, and again started in high glee. Twenty-five to twenty offered he did not do the distance in nine hours; the fall having given new hopes to the backers of time.

32. Tam O'Shanter ..... 9 40 | 33. Eldorado 9 20

In coming in this round he shewed slight weakness, and for a moment sat on the knee of a friend: some, however, thought that no harm was done; and, in fact, he was mounted and off in thirty seconds.

34. Coventry 9 0

One hundred and thirty-six miles had now been performed in six hours; so that three hours remained to complete the distance in nine hours, and four in ten hours, there being sixty-four miles to do. Six to four against the nine hours, taken.

35. Ringleader. The start on this horse was quick and excellent, and the distance performed in..... 8 42

36. Tranby (third time)..... 8 15
37. Ipsala..... 8 20
38. Skirmisher..... 8 45
39. Guildford (second time) .. 9 10

The interest now became more intense. One hundred and fifty-six miles had been performed, and there remained two hours and eleven minutes to accomplish the remaining forty-four in the nine hours, or at the rate of twenty miles an hour, which, considering what had already been done, was deemed easy work. On alighting from the last horse he appeared as fresh and as gay as a lark, laughed heartily, and took a glass of brandy and water, and said he was as hungry as a hawk. In forty seconds he was again mounted and off, amidst loud cheers, on

40. Streamlet 8 50

The odds were now six to four on nine hours, and ten to one he did it within the ten hours.

There was now forty miles to perform in two hours and three minutes, which, barring an accident, was backed as a certainty. It was accomplished in the following order:—

41. Donegani ..... 9 12 | 42. Hassan 9 0

The weather now greatly improved, the sun shone out with cheerfulness, and as Mr. O. came in, sitting as firm as a rock, he was loudly cheered. He appeared as fresh as ever, mounted in six seconds, and was off on

43. Surprise filly..... 9 10
44. Ringleader (second time) 9 30

45. Tranby (fourth time) 8 50

There were now but twenty miles to do in one hour and eleven minutes, to complete the whole in nine hours; and on starting, Mr.

O. said he would bet a hundred to one that no other person would do the distance in the same time. The weather became again unfavourable, but he was undaunted.

46. Coventry (second time) 9 30

There now remained but sixteen miles to perform in one hour and one minute, which was accomplished easily by the following four horses:—

47. Ipsala second (time)..... 9 0 | 48. Streamlet (second time) .. 9 0

A tremendous shower met Mr. O. soon after starting this round, and Streamlet actually turned round and refused to face it, but was at length got off, and completed the distance in the time stated, to the mortification of those who looked to a new casualty in their favour.

49. Donegani (second time).. 10 15 | 50. Liberty (third time)..... 9 40

In coming in at the conclusion, the crowd of spectators became more numerous than ever, and with difficulty was the winning-post kept clear. Mr. Osbaldeston came in in gallant style amidst tremendous cheers, thus accomplishing his Herculean task in exactly eight hours and forty-two minutes, or eighteen minutes within the nine hours, thereby winning all his bets on time. He stood a large part of the bet of £1000 to £100 against the nine hours.

The umpires had previously taken the watches from the box, and at the completion of the match confirmed the time we have stated in the most public manner.

Mr. Osbaldeston now proposed to ride another mile, lest any dispute might arise as to the precise distance; but the umpires declared themselves perfectly satisfied, and that no question whatever occurred to them as to the fair and full conclusion of the undertaking; an announcement which was again received with renewed acclamations, and Mr. Osbaldeston dismounted, and once more entered the Duke's stand, where he received the congratulations of his private friends. He was in high spirits, except that he complained of great pain in the back. In five minutes, having put on his great coat, and without other change, he mounted a favourite hack, and, surrounded by a large field of horsemen, cantered off to Newmarket, where he took a warm bath, and retired to bed for a short time.

The horses were kept ready at the stables close to the Duke's stand, and as they were wanted were brought out in readiness for mounting. A minute was generally occupied in mounting and dismounting, Mr. Osbaldeston preferring "a leg up" to the use of the stage, and he generally conversed freely with his friends. The horses were principally lent by gentlemen residing at Newmarket, who sent them to the course in care of their own training

grooms: several, however, were the property of Mr. Osbaldeston himself. It should be remarked, that in giving the time occupied in riding the respective distances, we do not include the periods occupied in mounting and dismounting, which took from six seconds to two minutes.

The exact number of horses used in the match was twenty-nine. Some were lame, and Ikey Solomons, like his great namesake, was quite out of favour after his first attempt. Tranby proved the best horse of the lot. Mr. Gulley, his proprietor, was extremely attentive throughout the match: we believe he even betted five hundred to fifty on the nine hours. Much attention was paid to the time taken by each horse in doing the distance. Tranby was the quickest; and next to him the little filly Fairy. Considering the state of the weather, and the rough surface of the course, the pace was first-rate. Guildford, with a string-halt in both his hind legs, excited great doubts, from his awkward gait; but he proved himself sound, and to be depended upon.

It will be seen that the two hundred miles were ridden, including stoppages, in eight hours and forty-two minutes; so that, allowing for time occupied in changing, refreshment, &c., the actual riding was done at a rate exceeding twenty-five miles an hour! The changes were fifty in number, and deducting six minutes for the lunch time, but thirty-six minutes were allowed for mounting and remounting fifty times, being an average of less than a minute; but the actual average occupied in the changes was more than a minute, making the pace upwards of twenty-five miles an hour.

As a finale to our account, we present a list of the most remarkable feats of horsemanship on record:—

In October 1741, at the Currah meeting, in Ireland, Mr. Wilde rode one hundred and twenty-seven miles in six hours and twenty-one minutes, with ten horses; the time stipulated was nine hours.

In 1745, Mr. C. Thornhill rode from Stilton to London, and back again to Stilton, being two hundred and thirteen miles, in eleven hours and thirty-four minutes.

In 1762, Mr. Shaftoe rode fifty miles and a quarter in one hour and forty-nine minutes, on ten horses, five of which were ridden twice.

In 1763, the same gentleman undertook to ride one hundred miles a-day for twenty-nine days together, on any one horse each day, the number of horses not to exceed twenty-nine. He accomplished it on fourteen horses, and in one day rode one hundred and sixty miles, on account of the tiring of his first horse.

In 1758, Miss Pond rode one thousand miles in one thousand hours, at Newmarket.

In December 1810, Mr. Milton, the horse-dealer, who weigh-

ed fifteen stone, rode from London to Stamford (starting from the corner of Dover Street) in four hours and twenty-five minutes, using eighteen horses.

There are many other feats on record; but none that make any approach to the one performed on Saturday.

Miscellanea.

Mules.

The drove of mules now came in sight, one following the other; a few were carrying no burdens, but the rest were either mounted or heavily laden; and as they wound along the crooked path, the difference of colour in the animals, the different colours and shapes of the baggage they were carrying, and the picturesque dress of the peons, who were vociferating the wild song by which they drive on the mules, and the sight of the dangerous path they had to cross, formed altogether a very interesting scene.

As soon as the leading mule came to the commencement of the pass he stopped, evidently unwilling to proceed; and of course all the rest stopped also.

He was the finest mule we had, and on that account had twice as much to carry as any of the rest; his load had never been relieved, and it consisted of four portmanteaus, two of which belonged to me, and which contained not only a very heavy bag of dollars, but also papers, which were of such consequence that I could hardly have continued my journey without them. The peons now redoubled their cries, and leaning over the sides of their mules, and picking up stones, they threw them at the leading mule, who now commenced his journey over the path. With his nose to the ground, literally smelling his way, he walked gently on, often changing the position of his feet, if he found the ground would not bear, until he came to the bad part of the pass, where he again stopped; and I then certainly began to look with great anxiety at my portmanteaus; but the peons again threw stones at him, and he continued his path, and reached me in safety: several others followed. At last a young mule, carrying a portmanteau, with two large sacks of provisions, and many other things, in passing hit his load against the rock, which knocked his two hind legs over the precipice, and the loose stone immediately began to roll away from under them: however, his fore legs were still on the narrow path; he had no room to put his hind legs there, but he placed his nose on the path on his left, and appeared to hold on by his mouth: his perilous fate was soon decided by a loose mule, who came, and in walking along after him, knocked his comrade's nose off the path, destroyed his balance, and head over heels the poor creature commenced a fall

which was really terrific. With all his baggage firmly lashed to him, he rolled down the steep slope until he came to the part which was perpendicular, and then he seemed to bound off, and turning round in the air, fell into the deep torrent on his back, and his luggage and him instantly disappeared. I thought, of course, he was killed; but up he rose, looking wild and scared, and immediately endeavoured to stem the torrent, which was foaming about him. It was a noble effort, and for a moment he seemed to succeed; but the eddy suddenly caught the great load which was upon his back, and turned him completely over: down went his head with all the baggage, and as he was carried along down the stream all I saw was his hind quarters, and his long thin wet tail lashing the water. As suddenly, however, up his head came again; but he was now weak, and went down the stream, turned round and round by the eddy, until, passing the corner of the rock, I lost sight of him. I saw, however, the peons, with their lassos in their hands, run down the side of the stream for some little distance; but they soon stopped, and after looking towards the mule for a few seconds, their earnest attitude gradually relaxed; and when they walked towards me I concluded that all was over. I walked up to the peons, and was just going to speak to them, when I saw at a distance a solitary mule coming towards us. We instantly perceived he was the phæton whose fall we had just witnessed: he joined his comrades. He was, of course, dripping wet; his eye looked dull, his whole countenance dejected; but none of his bones were broken; he was very little cut; and the bulletin of his health was altogether incredible.—*Head's Rough Notes*, pp. 155 to 159.

Veterinary Surgeons newly graduated.

We have great pleasure in inserting the following list of new graduates in our profession, especially as six of them belonged to the school of one of us, as well as to that of the Veterinary College; and we well know their worth.

We shall continue our list so far as we are enabled; and request that those gentlemen who may obtain their diplomas will favour us with their names and addresses.

Graduated November 16, 1831.

Mr. Samuel Wheatley, of Newmarket.
Mr. Richard Byers, of ——, near Gainsborough.
Mr. Richard Templar, Bangalore, East Indies.
Mr. James Cowie, Hackerton, N. B.

Graduated November 22.

Mr. Thomas Duncalf.
Mr. Thomas Jackson.
Mr. Charles May, Maldon, Essex.
Mr. M. E. Naylor, Wakefield.

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